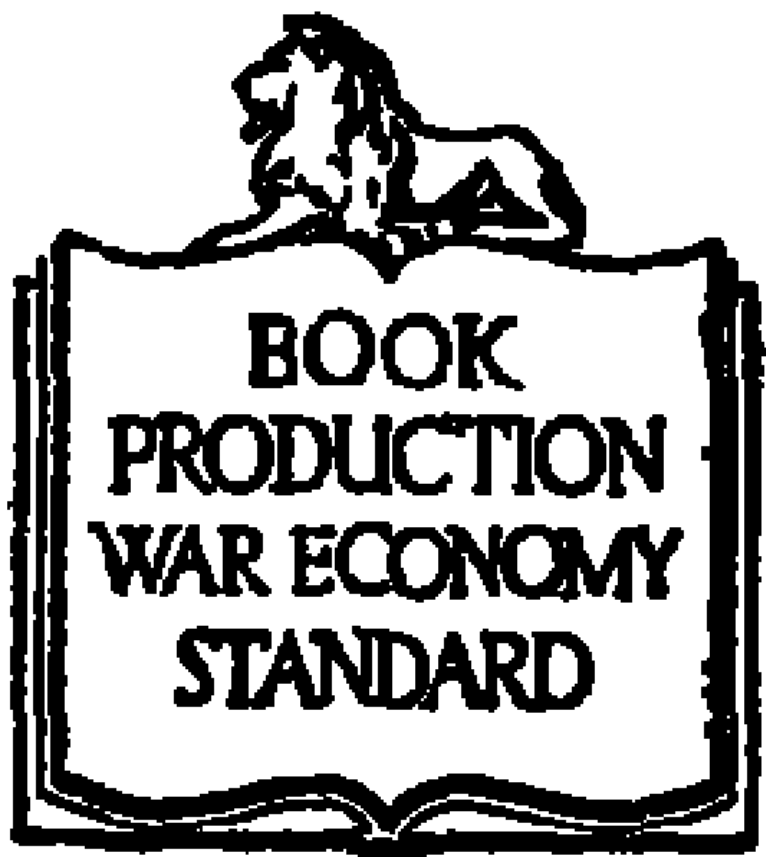


**THE
FREE WILL
CONTROVERSY**

BY

M. DAVIDSON



THE TYPOGRAPHY (AND
BINDING) OF THIS BOOK
CONFORMS TO THE
AUTHORIZED ECONOMY
STANDARD

THE FREE WILL CONTROVERSY

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PREFACE

IN a previous work [*Free Will or Determinism* (Watts, 1937)] the problem of Free Will or Determinism was considered from the points of view of the physicist, the philosopher, and the biologist. Certain conclusions which were attained were based upon the results of research carried out in comparatively recent times by physicists and biologists, though it must be admitted that in many cases the

evidence led to issues which were largely inconclusive. The present work has been undertaken by request of the publishers, and it deals with the subject more from the historical than from the scientific point of view. For this reason criticism of certain doctrines has been reduced to a minimum and the main object of the book has always been kept in the foreground—to present the subject in its historical aspect with a summary of the arguments employed by apologists for each side of the controversy. The severe

the sorrows of a distraught world for the salvation of which they now stand all equally helpless, visualizing but vaguely the reconstruction of shattered ideals.

“Modern science most clearly knows that man belongs to a great world-whole and world-movement; his life and work seem to be completely determined through his relations in this whole; his whole life is subject to an irresistible destiny, and in all his

undertakings and conduct he can only follow the course directed by it This destiny assumes for us the most diverse forms; and through this diversity surrounds us on all sides. Through the power of heredity we enter life with a definite nature; in the family, the State, and the society a particular kind of environment surrounds us and gives to our nature its more detailed colouring; the age meets us with particular tendencies, takes us up into itself with a supreme power, and just

as certainly directs us towards certain ends as it diverts us from others.”

[Life's Bases and Life's Ideals, translated by Alban G. Widgery, pp 174-5]

It is true that he shows how, in spite of the conflict between fate and freedom, life can be unified and made secure and elevated, and spiritual individuality can be formed. Nevertheless we feel that the problem is continuously with us throughout our lives, and

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INTRODUCTION

The problem of the freedom of the human will still awaits solution, in spite of the fact that philosophers and men of science have offered ostensibly conclusive “proofs” at various periods in the world’s history. With developments in different branches of science and with the enormous strides in psychology in recent times the problem still remains—perhaps it would be more correct to say that it has become more

according to the determination of the will, that is, if we choose to remain at rest, we may; if we choose to move, we also may.” As Huxley remarks, commenting on this passage:—

“Nobody doubts that within certain limits, you can do as you like. But what determines your likings and dislikings? Did you make your own constitution? Is it your contrivance that one thing is pleasant and another is painful? And, even if it

were, why did you prefer to make it after the one fashion rather than the other? . . . What they really want to do, if they would upset the necessitarian argument, is to prove that they are free to associate any emotion whatever with any idea whatever, to like pain as much as pleasure, vice as much as virtue—in short, to prove that whatever may be the fixity of order of the universe of things, that of thought is given over to chance” (pp 220—1).

as the nature of time and *human free will*.

A synopsis of the different chapters will assist the reader in following the historical presentation which has been developed in this work. It is perhaps inopportune that the first chapter should deal with Astrology—a subject which will not make a strong appeal to many readers who are only too well aware of the pernicious effects of this superstition, unfortunately resuscitated in recent times. It is impossible, however, to do justice to some of the early

Greek systems without a reference to Astrology, which had a profound influence on their development. This is particularly true of Stoicism, which, in spite of its beneficial influence in many ways, was nevertheless vitiated by the astral fatalism of the Chaldeans This is shown in the second chapter, which deals with Greek philosophy in as far as it includes the problem of the freedom of the will or a deterministic system.

Chapter 3 is almost entirely theological in its

outlook. It shows how the Hebrew conception of the introduction of evil into the world had an important influence in shaping Christian theology under the direction of St Paul

Questions of predestination, freedom of the will, the depravity of man, etc., emanating from the story of the Fall, divided Christendom into a number of conflicting sects, and Calvinistic theology in all its gloomy and revolting aspects completely distorted man's conceptions of the purpose of creation and of the

Creator Himself These points are considered in Chapter 4.

Leaving theological controversies, the next chapter deals with the philosophy of Descartes, who, while asserting that animals were mere automata, saved the freedom of the will for human beings by means of the pineal gland. It is remarkable that his view regarding the power of the mind to alter the motion of the “animal spirits” is something like Sir Arthur Eddington’s argument regarding the effect of the

one real thing, God, Substance, or Nature, based upon spiritualistic monism, has something in common with Christian theology, though he claimed that science was able to explain all physical events, even the actions of the human body, in physical terms. Although he held that in the mind there is no absolute or free will, yet he did not consider that we need feel ourselves robbed of anything valuable, because the supposed consciousness of freedom was merely due to the imperfection of our

system is dealt with very briefly in Chapter 7. Leibnitz turned his attention to the nature of individuality, which he could not find in Spinoza's system. Although his "monads" were not considered to possess any purpose—the only purpose in the universe being that which is displayed by God—yet true freedom was to be obtained by an insight into things as they exist for God. He held that the end determining the will is pleasure, which, however, has nothing in common with egoistic hedonism, but

is a sense of increase of perfection. When the will is guided by reason it will sacrifice the transitory pleasure and pursue the constant pleasures which are true happiness.

The system of David Hume is the next subject of inquiry in Chapter 8. It is shown that modern science necessarily rejects his view that causation is nothing more than mere belief or expectation. One result of his doctrine is that just as there are various degrees of strength in expectation, so too there are different degrees in causation. Dr.

Karl Pearson, adopting the fundamental empiricist position, finds that he is forced to give to causation a meaning entirely different from that of Hume. He says. "That a certain sequence has recurred and recurred in the past is a matter of experience to which we give expression in the concept *causation*, that it will continue to recur in the future is a matter of belief to which we give expression in the concept *probability*." [*Grammar of Science*, p. 136] Hume identifies causation with an expectation of the future,

deal with the question of the freedom of the will. It may seem almost an impossible task to attempt a synopsis of his views in a single chapter, and it is hoped that the reader will not derive a false conception of his doctrine. No criticism is offered except in the case of his Categorical Imperative, but reference is made to certain works which offer a destructive criticism of his system, and those who are sufficiently interested can read these for themselves.

The views of John Stuart Mill are given in Chapter

10. His doctrine that causation is the invariable sequence between phenomena, and that the causes with which he is concerned are not *efficient*, but *physical* causes, is briefly examined at the end of the chapter. The reader will find little difficulty in discovering from the short criticism the fundamental weakness in pure empiricism. It was considered advisable, however, to include his views in this work; they are the last philosophical doctrines bearing on the subject of free will with

developments in both physics and biology will not reconcile these diverse views. Perhaps there is something in one's mental or spiritual outlook which acts as the deciding factor in the attitude adopted. If so, we can never expect complete agreement, and so the problem which has perplexed men for thousands of years will still prove intractable. It is certain, however, that the influence of theology on either side is a waning force, and in time it may completely cease to be a factor in the controversy.

This applies not only to Christian theology but to other systems too. As is well known, the subject of predestination has produced endless controversies in Islam. The orthodox view is that good and evil take place by the predestination and predetermination of God, and that He may have wise ends in sight which we cannot comprehend, and hence it is unnecessary to ask why He wills and produces evil. Some Mohammedan teachers have endeavoured to maintain the consistency of

this doctrine with human freedom and responsibility, but the orthodox or Sunnite Mohammedans believe that man is constrained to act in a certain way by the decrees of God. The freethinking reaction, to which the Shiah's incline, has tended to establish free will at the expense of the sovereignty of God.

How can Christian theology confront the problem? When Christianity arose it was an age of decay, an age which was weary of life, and it cheerfully took up the conflict and implanted a

to produce the spirit of sacrifice, the minds of some may recoil like the Stoics of old from a pessimism which clouded the thought of the ancient pagan world. Or perhaps others will remain unmoved and indifferent. Wearied of the effort to find the solution to the enigmas and perplexities of life, they may be able to endure:

“The slings and arrows of outrageous fortune,”

even if such an endurance is accompanied by the

Epicurean pessimism of
Omar Khayyam:—

"Tis all a chequer-board of
nights and days
Where destiny with men
for pieces plays:
Hither and thither moves,
and mates, and slays,
And one by one back in
the closet lays."

To such speculations
posterity may provide an
answer.

CHAPTER 1: BABYLONIAN ASTROLOGY

ASTROLOGY may not appear to have any connection with the subject discussed in the present work. It must be remembered, however, that astrology had an important influence on Greek and Roman thought during a certain period, and it will be necessary to consider this influence at a later stage. Among ancient races the Babylonians were prominent for bringing magic into a pseudo-scientific state, and

skill in astrology. Although the Greeks used oracles, dreams, entrails of victims, flight of birds, etc., they were indebted to the Babylonians for astrology, which was introduced after the time of Alexander. Cicero assigns a great antiquity to the astrology of the Babylonians, making it go back 272,000 years! It is certain that astrologers had a very important influence on public affairs In the Book” of Daniel

[The events recorded in this Book refer to a period about 600 B. C. The Book

was probably written during the persecution of Antiochus Epiphanes, 168 or 167 B C.]

the Chaldeans appear as soothsayers and are coupled with magicians, exorcists, and interpreters of signs. We learn from Arrian that the Chaldeans warned Alexander not to enter Babylon, and their authority for the warning was based on an oracle which they had received from their god Belus. Didorus, however, states that the prediction which the Chaldean deputation

communicated to Alexander was derived from their astrological science.

The Chaldean astrology was based upon the theory that a star or a constellation presided over the birth of each individual, portending his or her fate and also shedding a benign or a malign influence on his future life. This heavenly guardian was one of the five planets—Mercury, Venus, Mars, Jupiter, and Saturn—or was one of the signs of the zodiac, and it does not appear that the stars exercised any

sunshine and happy meadows. From the Twelfth and last Epic of Gilgames we gather that the world beyond the grave was a place of unspeakable dreariness—a land of darkness where all things were forgotten and where even its denizens were forgotten of men. In some respects it resembled the Hebrew Sheol, the description of which, given in the Book of Job, 10:21-2, indicates the indebtedness of the Hebrews to the Babylonians for some of their religious beliefs. In the gloom of that

future life. It is quite irrelevant for our purpose who the author was.]

It would serve no useful purpose to deal at length with the meticulous attention which the Babylonians paid to their domestic and civic responsibilities, in spite of the fact that no reward awaited them in the other world. It will be sufficient to mention the code of Hammurabi, which makes detailed provision for every contingency that might arise in life. It is scarcely necessary to remark that

astronomical knowledge was extremely meagre and crude. As an instance we may refer to his teaching that the moon is a sphere, half of which is igneous, and that a lunar eclipse is due to the non-ignited portion being turned towards the earth.

The birth of Greek astrology can be placed somewhere about 280 B.C., and its diffusion both in Greece and Italy was favoured by a number of causes. First of all, the Greeks had studied meteorology and had associated certain states of

the weather with the appearance or disappearance of certain stars or constellations. There was nothing occult about this, and in a sense it could be called scientific; even in our own very uncertain climate it is possible to see some connection between the state of the weather and the rising of certain constellations at different periods of the night. Thus, when the constellation of Orion is visible in our islands we usually associate it with more or less cold weather. Unfortunately

among the Greeks this connection between stars and the weather degenerated into the superstitious view that there was an occult association, and the star was converted into the cause. Even Pliny was convinced that the stars influenced the weather, and meteorological fallacies are also found in the works of Aristotle. Obviously astro-meteorology would assist the spread of Chaldean astrology, but other factors were effective in the process. It was an article of religious faith

CHAPTER 2: THE PROBLEM IN GREEK AND ROMAN PHILOSOPHY

IN the Homeric poems the power of Zeus is displayed as a capricious and irritable will, or else as a Fate which opposed and disappointed men's inclinations to be just. In Hesiod it has reached a higher standard, and is the decree of a conscience which judges impartially in accordance with certain rules. Those who have transgressed are punished, as are those who have slavishly made themselves

accomplices of the crime. In the *Iliad* and *Odyssey* anthropomorphism has attained its zenith, and we find that Olympus is inhabited by men and women of a supernatural nature. The gods fall short of the ordinary human beings in morality, and the immortality which is offered can scarcely be described as attractive or even desirable. The presence of Fate stands forth more or less definitely outlined, and the consciousness of mortality and of man's impotence darkens much of the early Greek reflection on human

life. The tragedians show us the utter helplessness of man in his struggle against fate. Sometimes fate is identified with the Nemesis which pursues guilt, whether it be hereditary or individual; sometimes the predestined and inevitable transgression and the punishment which follows educate the character. But the main idea is that man cannot escape his destiny and if God means to destroy a man He presents evil to him as good. Only to gods in heaven comes no old age, but even the gods cannot save men from death. As the

death of princes was associated with the downfall of States, the latter are under the inflexible decrees of destiny which the gods can postpone but are powerless to avert ultimately. That the pronouncements of the poets were taken seriously is due to the fact that in Greece the poets took the place of the prophets and were the religious as well as the ethical authorities. The poet was often called to account because of his moral sentiments. It would scarcely be correct to say that the poet was entirely responsible for setting the

numerous illustrations of the fact that men are to be found who rise above the current conception of the morals of the gods. From the sixth century B. C. there is a decided drift towards monotheism, and Zeus becomes less anthropomorphic, at the same time tending to assume supreme power. When the universe is ruled by a superior will against which others are impotent it is a simple process to merge Destiny in this will, which is regarded as interested in mundane affairs and of a benevolent nature As will

appear later, the Stoics identified Destiny with Providence, and so could trust the government of the universe to justify its ways to men. There is another way in which man is aware that his destiny is shaped for him without his own consent and without his power to intervene. The Greeks believed in a genius attending a man from his birth, as pointed out in the previous chapter. Not only did this genius guide his destiny; it was also believed that a hereditary genius could guide the destiny of a family, this genius carrying

who is dominated by some irresistible motive urging him on to destruction. Those who occupied higher stations in life were supposed to be specially afflicted because their prosperity lifted them near that felicity which is the prerogative of the gods, who then display their justifiable anger against them. Herodotus and Aeschylus see the judgment of the gods on the eastern despots who attempted to destroy the freedom of the Greek cities in the Persian wars.

Enough has been said about the poets and

like men, and reproaches Homer and Hesiod with attributing to the gods things that are a shame among men, such as deceit, theft, and other lawless acts. Even if we regard Xenophanes as a pantheist and merely asserting the unity of Being, it is obvious that in his days it was quite a safe procedure to attack the Homeric pantheon. It is generally recognized that Thales of Miletus (640-546 B.C.) was the founder of Greek geometry, astronomy, and philosophy. The problem upon which Thales and the

philosophers of Miletus concentrated their attention was that of change. The world presented a spectacle of perpetual transformation, but what was this one thing which took so many shapes? Thales said it was water, Anaximander thought that it was not only water but also its opposite—fire, Anaximenes identified the primitive substance with air, or rather with mist or vapour. The Milesian school came to an end in 494 B. C., when the Persians destroyed Miletus. As the present

work is limited to such philosophical tenets as have a direct bearing on the subject of freedom of will or determination, it is unnecessary to consider all the systems which arose in Greece from the sixth century B. C. The teaching of Democritus, one of the founders of the Atomic philosophy, will now be dealt with. Democritus was a contemporary of Socrates, but the exact date of his birth is uncertain, it has been fixed on various years from 494 to 460 B. C. Of all the materialistic explanations of the

universe put forth by the Greeks, that of Democritus has held the primary place in philosophical thought. Atoms, according to Democritus, are the ultimate material of all things, even including spirit, and have existed from all eternity. Although they are invisible, they are extended, heavy, and also impenetrable, and vary in shape. Atoms are in continuous motion, which, like the atoms themselves, is eternal. The world and all that it contains were produced by the motion of the atoms, and it is thought

by some that Democritus taught that there is an innate necessity by which similar atoms come together Soul and fire were held to be of one nature, and the atoms composing them were small and smooth. Life was maintained by inhaling and exhaling these atoms, and it followed that the soul perished, with the body. The system denied that the creation of the world was due to reason, and there is no doubt that Aristotle's condemnation of this part of the teaching of Democritus was a great

philosophy. It is unnecessary to deal with the earlier work of Leucippus, and we shall now consider the influence of Democritus on the Epicureans.

Epicurus (342-270 B C) based his physics on the teaching of Democritus, and his main object was the abolition of the dualism between mind and matter. Atoms and the void are his fundamental postulates, and the atoms in their perpetual motions are always giving rise to new worlds which, in their turn, are perpetually tending

towards dissolution and towards a fresh series of creations. Divine intervention is eliminated, and the gods, the existence of whom is not denied, have no responsibility for upholding or directing the world. Like Democritus, Epicurus objects to the doctrine of mythology and he also objects to the doctrine of an inevitable fate—that is, a necessary order of things which remains unchangeable and supreme above human will.

“Better to accept all the

legends of the gods than to make ourselves slaves to the fate of the natural philosophers.”

Fatalism seemed to Epicurus as deadly to man's true welfare as the popular superstition. It is remarkable that this view should be held by one who accepted Atomism, but in the movements of the atoms Epicurus introduced a sudden change in direction, so that their aggregation was rendered easier, and in this way the law of destiny was broken

regard either Epicurus or his chief followers as sensualists, and indeed there is nothing to show that they recommended, either by precept or example, self-indulgence as the best means of attaining their goal A discussion of the ethical side of the system is outside the province of the present volume, but it may be remarked that the work of Lucretius (96-55 B C.) is a proof, if such is needed, that Epicureanism is quite consistent with great nobility of soul, though it taught that the death of the

body was the end of everything for man, and hence the other world held out neither hopes nor terrors. The Epicurean school was confronted by another, founded at the end of the fourth century B.C. by Zeno. It took its name, not from that of its founder, but from the *Stoa* or porch in Athens where he taught. The Stoics opposed the Epicurean doctrine that pleasure was the chief good and taught that virtue was the *summum bonum*. For centuries the two schools attracted adherents, between whom endless

was the real secret of happiness and serenity. The world as a developed whole was looked upon as an organism permeated with the divine Spirit, and in a sense the world process might be regarded as a self-realization of the divine Being. Although the Stoics claimed the citizenship of the world, this did not prevent them from acknowledging the narrower citizenship. The former claim was based upon the conviction that the universe contained a wonderful and beautiful order, and those who could

discern this could show their devotion just as the patriots could to their native city. It is not surprising that Stoicism found a ready response in Rome. The view that the world was a commonwealth in which private interests must be subordinated to the public weal was congenial to Roman tradition. This conception of the solidarity of the universe, fundamental in the system, contained much akin to the astral fatalism of the Chaldeans, and, while Stoicism contributed something to

championed religion against the Epicureans, who maintained that the will was free, but a moment's reflection will show how this apparent anomaly is explicable With the Stoics the immutable order of Nature was identified with divine Providence, and sometimes the most deeply religious minds are filled with the thought of their helplessness and impotence to work out their own salvation. All the good which they possess they ascribe to the grace of God—a statement which

requires no elaboration for those who are conversant with the theological outlook of many sects in Christendom. Stoicism fell more rapidly than any of the other ancient systems, and its influence after the days of Marcus Aurelius Antoninus was small. If it is true, as some believe, that his *Meditations* were intended for the guidance in life of his son Commodus, they failed in their object. Commodus was one of the greatest sensualists and tyrants that ever disgraced the Roman purple. The writings of the

condition of the body or through defective education or a bad political system, though he cannot on this account claim exemption from the charge of guiltiness. In particular, he has no right to make a claim for exoneration if his action proceeds from evil intention. In *The*

Nicomachean Ethics

Aristotle lays it down that virtue and vice are both voluntary, for, if it is in our power to act, it is in our power to refrain from acting, and vice versa. If it is in our power to act when action is noble, it will be in

CHAPTER 3: THE HEBREW CONCEPTION OF THE ORIGIN OF EVIL, AND ITS IMPACT ON CHRISTIAN THEOLOGY

THE question of free will or determinism in Judaism and Christianity is closely associated with the problems of predestination and of the origin of evil in the world. For this reason it will be necessary to digress from the main thesis to consider the chief explanations which have been offered to account for sin and how it first

appeared. There is an enormous amount of literature which deals with this subject, and in the present chapter it will be possible only to give a mere outline, which, it is hoped, will suffice as a basis for a proper understanding of certain ramifications in Christian theology. It is generally believed that the only explanation which the Hebrew sacred books afford of the origin of evil is that which is given in Genesis in, where the temptation by the devil of Adam and Eve is held responsible for the Fall.

Before this legend was accepted, however, there was another story of an unsavoury nature, narrated in Genesis 6:1-7, in which we are informed that fallen angels — “the sons of God” — married the daughters of men and as a result of this union a race of giants (the Nephilim) appeared who filled the earth with violence. These fallen angels are referred to in various parts of the Canonical Books as well as the Apocrypha, and are known as “the watchers.” In the Book of Daniel they are frequently mentioned;

chapter 5. The probable meaning of 6:3 is, “My spirit shall not abide in man forever, for in his going astray he also is flesh; therefore shall his days be an hundred and twenty years.” As the elimination of the divine, either through fear of the ultimate power of the Nephilim or through jealousy, was going to be a slow process, Yahweh next decided on a speedier method by which they would be destroyed, and there follows the account of the Deluge. In verse 5 we read of Yahweh’s opinion about man—that

birth, and hence no one inherits a tendency to sin from his parents nor does he transmit such a tendency to his children. The *yeger* was not implanted to make people sin, but it was considered to be a necessary pre-condition of moral virtue. At the beginning of the Christian era there were these three theories to account for the origin of sin (1) the legend of the apostate angels, which, however, presented certain difficulties, one of which was the fact that sin was in the world after the Deluge;

(2) the legend recorded in Genesis in, which was later accepted in Christian theology; (3) the Rabbinical doctrine of the evil imagination. There is nothing in the Gospels to show that Christ approved of any of these theories, but we cannot base very much on the argument from silence. There is a remarkable figure to illustrate the wickedness of His days, mentioned by St. Matthew, 12:43-45, and also by St. Luke, 11:24-6. It tells of the expulsion of an evil spirit from a man and its subsequent

future of Christianity. It is probably correct to say that if there had been no St Paul the religion of Europe would not have been Christian. Instead of quoting the various portions of this chapter, which is difficult in parts both in language and in the links of thought, it will be better to give a brief explanation of what was in the mind of the writer, more especially in verses 12-21.

The primary object is to bring out the wonderful grandeur and extent of the work of Christ in contrast

with the devastating effects of Adam's transgression. The results of the Fall were found not only in inherited sinfulness, but also in inherited guilt—the liability to punishment on account of the primeval sin—and this punishment was physical death. As some (e.g. infants), who have not committed actual sin, die, the explanation is that they die on account of inherited or perhaps vicarious guilt. He then proceeds to extol the glorious difference between the work of Adam and that of Christ—a difference exhibited in the

[It is adumbrated by Origen in De Principis There are hints of it in Philo's works]

thought that there was some form of cosmic fall, and in comparatively recent times this idea has been resuscitated in various forms. Canon Peter Green finds no solution of the problem of pain and suffering except in a deep-seated corruption of the entire universe *ab initio*. It is outside the scope of this work to criticize these and other views regarding the Fall. As

they are devoid of historical bases and, in the nature of the circumstances, are outside the range of scientific investigation, no useful purpose would be served by discussing them.

It is remarkable that during the Sub-Apostolic Age, about 120 years after the death of St Peter and St Paul, there is very little reference to the Adam Fall theory. The Epistle of Barnabas, which is assigned different dates, A.D 70-9 by Lightfoot, but A.D. 130 by others, points out a parallelism between the serpents in the

wilderness and the serpent of the Fall It has already been mentioned that the Second Epistle of Peter, probably written about AD 150, refers to the Watcher theory The Shepherd of Hermas which was written after AD 90 appears to assume the *vecei* doctrine. This doctrine is also assumed in the Epistle of James, 1:14, which was written much earlier than The Shepherd of Hermas. Before Justin Martyr, who wrote about A.D 150-55, we find that the only reference to the Adam Fall story appears in the Epistle of

high, but nowhere does he advocate the odium which is attached to them in the writings of Tertullian. He maintains that a woman should go about in a humble garb, mourning and repentant, so that she can expiate that which she derives from Eve, the ignominy of the first sin, and the odium attaching to her as the cause of human perdition. In *De cultu femmdrum* 1:1, he says: "Do you not know that you are an Eve? The sentence of God on this sex of yours lives in this age; the guilt must of necessity live too.

dissented from this view, but the stigma on the sex still continued. If the modern mind revolts from such teaching it may be pointed out that vicarious suffering was considered an ordinance of Providence, and it was not for mortals to question the mysteries and justice of God's dispensation.

We should expect that St. Paul, brought up a strict Pharisee, would be interested in the question of predestination, on which a difference of opinion existed among the various sects Josephus tells us in

Antiq 18:1, 3, 4; 13:5, 9, that the Sadducees were defenders of free will and carried their defence so far that they denied predestination. On the other hand, the Pharisees and Essenes held extreme views of the opposite nature and left no place for human freedom. As predestination is closely associated with the question of free will or determinism and is clearly taught by St Paul, it will be necessary to say something on the subject.

The word “predestination” is used

adequately with the controversy on this subject, and it will serve the object of this work better if the views of a few outstanding theologians and philosophers are considered. The first of these, and the one who more than any other has left a permanent impression on Christian teaching, is St Augustine, Bishop of Hippo (A D. 354-430). His early life, the story of his conversion, his *Confessions*, and much of his work are all so well known that it would be superfluous to say anything

CHAPTER 4: THE CONTROVERSY FROM THE DAYS OF ST. AUGUSTINE TO THE TIME OF THE REFORMERS

THREE great controversies threatened the peace of the Church during the days of St Augustine, and a considerable amount of his time and energy was spent in combating these. His attack on the heresies of the Manicheans and the Donatist schism need not take up our time, and we shall deal with his attitude towards the Pelagian

heresy, which has an important bearing on the subject discussed in the previous chapter. It may be remarked here that, though St. Augustine was very acute and subtle in his arguments, he was not always a consecutive thinker, and on some occasions his convictions appear to have been developed according to the polemical needs of the time and circumstances.

The Pelagian controversy would never have attained the importance that it did if Coelestius, a friend and follower of Pelagius, had

freedom it tended to undermine all sense of individual responsibility. Whatever advantage St. Augustine had in dialectics and philosophical speculation, it must be conceded that there was much in favour of Pelagius from the side of morals and practical life. The Pelagian system maintained that there can be no sin where the will is not absolutely free—that is, able to choose good or evil. The Pelagian formula—“Si necessitatis est, peccatum non est; si voluntatis, vitian potest”—involved what is commonly

known as the “liberty of indifference,” or “power of contrary choice.” This theory affirms that the will is free, but not in the sense that the individual is self-determined. It implies that at each moment of life and in each volition, the will is able to choose good or evil, irrespective of the previous career of the individual. From this principle it naturally followed that human will takes the initiative in each man’s salvation, and indeed is the determining factor in the process—a view in direct contradiction

Rheginum. Faustus was a very strong opponent of the doctrine of arbitrary predestination, and he also advocated, as some others did, the necessity for the co-operation of the divine and the human will. Without going fully into the history of the controversy, it will be sufficient to deal with the final result. In A D 529 Pope Felix IV summoned a Synod at Orange in Southern Gaul, and amongst the points which it settled the following were very important for the future of the Church:—

(1) By the sin of Adam, free will is so weakened that henceforth no man can love God in a suitable manner, believe in Him, or act for God's sake, unless grace has first come to him. Thus that glorious faith of Abel, Noah, Abraham, Isaac, and other ancient Fathers, on account of which the Apostle praises them, was imparted to them, not through the natural goodness which was in the beginning given to Adam, but by the grace of God. (2) All, however, are able, after they have received grace through

This Synod practically concluded the whole of the Pelagian and semi-Pelagian controversies for the ancient Church, and after this a moderate Augustinianism prevailed, although extremists arose from time to time. In the ninth century the old Predestinarian controversy was revived by Gottschalk, a monk in the Rheims monastery, who held and taught a twofold election—those for whom Christ died to eternal life, the reprobate to eternal death. He was handed over to his metropolitan,

“ . . . for sin is nothing at all—only a negation, and punishment is simply the displeasure of the sinner at the failure of his evil aims. Sin lies outside of God, and does not exist for Him at all. He does not even foreknow it, much less foreordain it, for God knows only what is.”

While this orthodoxy was considered more dangerous than the heresy which it was supposed to combat, perhaps it was fortunate for Scotus that it was too abstruse for proceedings to

difference of character Aquinas's idea of God was Aristotelian—"first mover, itself unmoved"—and he maintained that God is in all things by His power, presence, and essence. His theory of the divine concurrence seemed to provide a philosophical basis for Augustinianism. All things are governed by divine providence through two classes of secondary causes—the necessary or natural and the contingent or voluntary. The mediate or proximate causes of everything that occurs in the natural world are

Thomist doctrine is that the divine will, like the human will, is subject to rational determination, so that right is not right because God wills it, but that God wills it because it is right. There are some theologians who hold this view still, and who maintain that moral distinctions are antecedent to the divine commandments. The question of the objectivity of moral judgments is, however, outside the present inquiry.

The view of predestination which is based on the idea that God

is the sole cause must, to be consistent, give some explanation of the origin of evil, and Aquinas attempted to do so by postulating three principles: (1) All kinds of creatures are necessary to a complete universe, and these must belong to the lowest as well as to the highest; (2) There cannot be a perfect universe without the existence of free will, and this necessarily involves the risk of evil; (3) Evil is a negation. It cannot be said that these points and the arguments which are based

The beliefs of many on the matter are of a very vague character, though officially the members of the various religious bodies are supposed to be guided by creeds or some forms of doctrinal tenets. In the Church of England, Articles IX, X, and XIII contain strong affirmations of the Augustinian conceptions. In common with Augustine and the Reformers, Article XIII asserts that works done before grace have the nature of sin. The Council of Trent decided that the virtuous actions of pagans are not sins, and most

readers will agree that the Roman Catholic view contains more truth than the Anglican. Of course private interpretation in the Church of England is allowed to a very much greater extent than in the Roman Catholic Church, and general assent to the Articles does not necessarily imply that they are agreed to in detail as formulating theological views which must be accepted by everyone. As an instance of this private interpretation the following quotation from Dr. Cyril Alington is interesting. In

Talmud and the Old Testament, the view that Christianity is unique in the religions of the world would scarcely be tenable. Dr Alington goes still further in the work of destruction. Dealing with Article 17, which is concerned with predestination and election, he tells us that the Articles were drawn up with the laudable motive of minimizing the difficulties which divided us from Continental Protestants. To secure their support we went farther than we wished, and our purpose

CHAPTER 5: THE PROBLEM AS PRESENTED BY DESCARTES'S PHILOSOPHY

WE now reach a stage where society was passing through a transition from the ecclesiastical to the secular ideal. The necessary conditions for such a change had been brought about by a great movement which combined various aspects and is known as the Renaissance. The drama of human life had previously been played on the stage of "heaven and earth," but

now this seemed a mere illusion. The centre of the universe was shifted from our planet, which shrank into a speck in the great cosmos, and men's imagination was profoundly impressed with the thought of the insignificance of human life and effort. The narrow theological view which hitherto had dominated life and thought, the conception of God with a local habitation in the heavens, the beliefs which men entertained regarding His interference in the petty affairs of this world,

thought opened up a new and extensive vista hitherto undreamed of. In such an age, when authority was shifting from the ecclesiastical arm and when many of the old tenets which once had been accepted as the very bulwarks of society were being discarded, it is not surprising if men should look for some sure basis on which to erect a system that would satisfy the intellectual cravings of the time when certainty seemed to be built on a foundation of sand.

Rene

Descartes

sceptics, who doubt only that they may doubt and seek nothing beyond uncertainty itself; for, on the contrary, my design was singly to find ground of assurance, and cast aside the loose earth and sand that I might reach the rock or the clay.” Modern philosophy is generally considered to have started with Descartes, and a brief survey of his system will now be presented. It must not be expected, however, that anything more than a mere outline which is relevant for the purpose of this book will be given.

have originated from my own nature, I can feel certain that there is a commensurate cause outside of me. It is true that in most cases I can discover nothing in my ideas which requires more than my own nature to produce, but there is one outstanding exception — the idea of God.

“By the name God, I understand a substance infinite (eternal, immutable), independent, all-knowing, all-powerful, and by which I myself, and

every other thing that exists, if any such there be, were created But these properties are so great and excellent, that the more I consider them the less I feel persuaded that the idea I have of them owes its origin to myself alone. And thus it is absolutely necessary to conclude, from all that I have before said, that God exists; for though the idea of substance be in my mind owing to this, that I myself am a substance, I should not, however, have the idea of an infinite

substance, seeing I am a finite being, unless it were given me by some substance in reality infinite”

[Meditations, 111]

Here, then, is the bridge between myself and external reality, and the real existence of God must be postulated as the only being great enough to explain the presence of the idea of God which undoubtedly exists. The independent isolated self which is presupposed in the argument, “I think,

cause of our errors

“The first attribute of God which here falls to be considered is that He is absolutely veracious and the source of all light, so that it is plainly repugnant to Him to deceive us, or to be properly and positively the cause of the errors to which we are consciously subject”

Hence we must discard the doubt in the existence of matter, otherwise God would be responsible for making us believe a lie.

It is not within the province of the present treatise to offer a detailed criticism of any system, as its object is merely to present the historical side of the controversy on free will or determinism. It may not be out of place, however, to remark at this stage, what many readers probably know already, that Descartes's arguments for the existence of God and of the external world are not very convincing. In proving the former, the non-self, as we have already pointed out, is identified with God, but

mind and matter—the two substances into which the world of experience is divided. The mind or soul is a thing which thinks, but difficulties arise about the nature of matter which makes itself known to the ordinary man by certain qualities—taste, colour, sound, etc. As some of these are only secondary effects upon our sensibility, without any counterpart in the thing itself, what becomes of the appeal to the veracity of God? Descartes avoids this difficulty by his theory of truth and falsity. When I

deception would arise only if a thing was false which we see clearly and distinctly to be true. The only quality which can be conceived clearly is extension, and this is evident from the fact that the truths of geometry—the clearest of all sciences—apply to extension. In his physical philosophy he attempted to explain everything on mechanical principles, and his conception of a purely mechanical world is the basis of modern Materialism.

The essence of matter is extension, and it is infinite

and infinitely divisible, for which reason atoms cannot exist. Movement is so different from extension that it must originate from outside—from God—who created some bodies having motion and others having rest. It follows from the unchangeable nature of God that the quantity of motion as well as of rest is invariable. This does not imply that there is conservation of energy, as the following quotation from *Principles* shows:

“For, although motion is

nothing in the matter moved but its mode, it has yet a certain and determinate quantity, which we easily understand may remain always the same in the whole universe, although it changes in each of the parts of it. So that, in truth, we may hold, when a part of matter is moved with double the quickness of another, and that other is twice the size of the former, that there is just precisely as much motion, but no more, in the less body as in the greater; and

that in proportion as the motion of any one part is reduced, so is that of some other and equal portion accelerated”.

The mechanical nature of the universe was extended to comprise all creation, human beings included, though with certain reservations which will be noticed later. In the world of matter nothing could be admitted which suggested self-determination. All its energy must be communicated, not self-originated, and hence

brutes are only automata. Their bodies are part of the material world, and they are subject to the same mechanical laws that govern other things. Although Descartes spent a lot of time in dissecting, he found no reason for modifying this view. Animals are simply material things more complex than the rest, and their life is the expression of the complexity of their mechanism. It is unfortunate that some of the Cartesians applied this theory even to the extent of treating animals with

“The greatest of all the prejudices we have retained from infancy is that of believing that brutes think. The source of our error comes from having observed that many of the bodily members of brutes are not very different from our own in shape and movements, and from the belief that our mind is the principle of the motions which occur in us—that it imparts motion to the body, and is the cause of our thoughts. Assuming this, we find no

difficulty in believing that there is in brutes a mind similar to our own; but having made the discovery, after thinking well upon it, that two different principles of our movements are to be distinguished—the one entirely mechanical and corporeal, which depends entirely on the force of the animal spirits, and the configuration of the bodily parts, and which may be called corporeal soul, and the other incorporeal, that is to say, mind or soul, which you may define as a

substance which thinks—I have enquired with great care whether the motions of animals proceed from these two principles, or from one alone. Now having clearly perceived that they can proceed from one only, I have held it demonstrated that we are not able in any manner to prove that there is in the animals a soul which thinks. I am not at all disturbed in my opinion by those doublings and cunning tricks of dogs and foxes, nor by all those things which animals do,

either from fear, or to get something to eat, or just for sport. I engage to explain all that very easily, merely by the conformation of the parts of animals.”

(Letter to Henry More.)

If the activities of animals can be thus explained on purely mechanical grounds, how can those of human beings be explained? Descartes was not prepared to apply his thesis to every department of men's actions, though he held that the more habitual and

reflex actions are mechanical. The mind was able to interfere to some extent with the motions of the body, and this leads us to another difficulty in the system—the union of the body and spirit in man. How are we to explain the union of two substances which are independent and each of which exists in its own right?

Descartes admits that even God cannot make these two substances one, and the union of the two must be taken as an empirical fact. The difficulty of explaining how

vital spirits to accomplish this, He saves the freedom of the will, but his arguments are not always very convincing. Thus in *The Principles of Philosophy*, VI, he shows how we possess a free will, by which we can withhold our assent from what is doubtful and so avoid error “But meanwhile, whoever in the end may be the author of our being, and however powerful and deceitful he may be, we are nevertheless conscious of a freedom, by which we can refrain from admitting to a place in our belief ought

that is not manifestly certain and undoubted, and thus guard against ever being deceived” He returns to this subject (XXXVII-XLI), and holds that the chief perfection of man is his being able to act freely or by will, and that it is this which renders him worthy of praise or blame. He realizes the difficulty in reconciling the freedom of the will with divine pre-ordination, but avoids the problem by falling back on the limitations of the human mind. Our minds are limited, while the power of God,

“by which He not only knew from all eternity what is or can be, but also willed and pre-ordained it, is infinite. It thus happens that we possess sufficient intelligence to know clearly and distinctly that this power is in God, but not enough to comprehend how He leaves the free actions of men indeterminate”.

Although Descartes exercised a profound influence in his age, his immediate followers were

completely independent of anything else. Occasionalism was more logical when it appealed to God's power, but it was left to a greater than Descartes or the Occasionalists to point the way to a more intimate connection between God and the world.

LITERATURE

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Translations—Haldane and Ross (*Works*, 2 Vols),

CHAPTER 6: SPINOZA'S DOCTRINE OF FREE WILL

AT the end of the preceding chapter it was pointed out that there were certain inconsistencies in the Cartesian system and that some of Descartes's followers attempted to rectify its defects. It is not surprising that Spinoza (1632-77), who started as a Cartesian, should end by constructing a system on the basis of one Substance which he identified with God or Nature, of which extension and thought are

“attributes” It may be admitted that it is difficult to give an adequate account of Spinoza’s philosophy in a short compass His system is not easy and is liable to serious misconstructions—so serious, indeed, that some philosophers since his days have applied to him the titles “this famous Atheist” and “a God-intoxicated man” Perhaps it should be added that if the title “religious” is restricted to the adherents of orthodox theology, Spinoza must be included among the non-religious The personal God of the

being infinite, He has an infinite number of attributes, but no others are known to us. These two attributes never interfere with each other or overlap each other, and the nature of God can be expressed in terms of either. There is a complete parallelism between them, and there is nothing in the mind which is not the idea or mental counterpart of something material. In the same way there is nothing in the material world of which there is not a corresponding idea. This doctrine, based upon

spiritualistic monism, makes God the only real Substance, Who manifests Himself by producing changes and motions in two parallel orders of mind and matter, these two being quite distinct, or under His two attributes of Thought and Extension. As might be expected, this doctrine would lead to a conception of God very different from that of Descartes, who divided the world into two Substances, distinct from each other, and a God separate from both. The Rationalism which arose from, this view removed

God still more from the world and almost isolated Him from His work. Spinoza attempted to show the close connection between God and the world, and to interpret all reality in terms of His ultimate perfection. The starting-point of Spinoza's thought is the perception of the unreality of finite things. After experiencing the futility of all the surroundings of social life, he sought for something of which the attainment would enable him to enjoy continuous, supreme, and unending happiness.

Recognizing the evils which ensue from the fact that happiness or unhappiness is made to depend on the quality of the objects which we love, these objects being perishable, where can true joy be found?

“But love toward a thing eternal and infinite fills the mind wholly with joy, and is itself unmingled with any sadness; wherefore it is greatly to be desired and sought for with all our strength.”

*(Improvement of the
Intellect, Elwes's*

mathematician and physicist that little justice was done to the plurality of individuals. The minds of men and the thoughts which constitute them are parts of the great eternal system of thought which is God viewed under “the attribute of thought” in the same way in which our bodies are parts of the eternal system of matter in motion which is God viewed under the “attribute of extension”.

This brief outline of Spinoza’s system will suffice for our chief object—an examination of

(First Part, “Of God”), Spinoza explains why men imagine themselves to be free. The following quotation from the beginning of the Appendix gives a summary of his conclusions in the thirty-six Propositions contained in the First Part and is very important in so far as it has a bearing on free will.—

“I have now explained the nature of God and its properties. I have shown that He necessarily exists; that He is one God; that

from the necessity alone of His own nature He is and acts; that He is, and in what way He is, the free cause of all things; that all things are in Him, and so depend upon Him that without Him they can neither be nor can be conceived, and, finally, that all things have been predetermined by Him, not indeed from freedom of will or from absolute good pleasure, but from His absolute nature or infinite power.”

He then proceeds to

endowed with human liberty, has made these things for his service. Having heard nothing about the mind of such a ruler or rulers, he judges of it from his own, and so affirms that the gods direct everything for his advantage with the object of making him hold them in high honour.

“This is the reason why each man has devised for himself, out of his own brain, a different mode of worshipping God, so that God might love him above

others, and direct all nature to the service of his blind cupidity and insatiable avarice.”

This prejudice has thus been turned into a superstition, and the attempt to show that nature does nothing in vain seems to end in showing that nature, the gods, and man are alike mad. Where has it led men? Not only have beneficial things been observed, but also much that is injurious, like storms, earthquakes, and diseases, and it was

affirmed that these occurred either because the gods were angry by reason of wrongs which man had inflicted on them, or because of sins committed in the method of worshipping them. In spite of the fact that the pious and the impious suffered indiscriminately, the prejudices still remained, and it was considered indisputable that the judgments of the gods pass man's comprehension.

“This opinion alone would have been sufficient to

keep the human race in darkness to all eternity if mathematics, which does not deal with ends, but with the essences and properties of forms, had not placed before us another rule of truth”

The conclusion is that nature has set no end before herself, and also that all final causes are only human fictions. It will be better at this stage to give some quotations from Spinoza to show that God does not act from freedom of will nor do human

beings.—

Ethic, *Part 1, Prop. XXXII.* “The will cannot be called a free cause, but can only be called necessary.”

Demonst.—“The will is only a certain mode of thought, like the intellect, and therefore (Prop 28) no volition can exist or be determined to action unless it be determined by another cause and this again by another, and so on *ad infinitum*. And if the will be supposed infinite, it must be

determined to existence and action by God, not in so far as He is substance absolutely infinite, but in so far as He possesses an attribute which expresses the infinite and eternal essence of thought (Prop. 23). In whatever way, therefore, the will be conceived, whether as finite or infinite, it requires a cause by which it may be determined to existence and action, and therefore (Def 7) it cannot be called a free cause, but only necessary or compelled — *Q.E.D.* ”

Corol 1.—“Hence it follows, firstly, that God does not act from freedom of the will ”

Ethic, Part 2 —“Of the Nature and Origin of the Mind.” Prop. XLVIII —

“In the mind there is no absolute or free will, but the mind is determined to this or that volition by a cause, which is also determined by another cause, and this again by another, and so on *ad infinitum* ”

Demonst —“The mind is a certain and determinate mode of thought (Prop. 11,

Pt 1) and therefore (Corol 2, Prop 17, Pt 1) it cannot be the free cause of its own actions, or have an absolute faculty of willing or not willing, but must be determined by this or that volition (Prop 28, Pt 1) by a cause which is also determined by another cause, and this again by another, and 'So on *ad infinitum* ”

It is important to notice what Spinoza means by the will. This is explained in the Scholium which follows the above proposition

“By the will I understand a faculty of affirming or denying, but not a desire; a faculty, I say, by which the mind affirms or denies that which is true or false, and not a desire by which the mind seeks a thing or turns away from it.”

Having previously shown that these faculties are universal notions which are not distinguishable from the individual notions from which they are formed, the question arises:

“Are the volitions themselves anything more than the ideas of things?”

In the next Proposition he shows that

“In the mind there is no volition or affirmation and negation excepting that which the idea, in so far as it is an idea, involves.”

As a Corollary from this Proposition it is demonstrated that the will and the intellect are one and the same thing, and Spinoza proceeds to answer

the objections which have been raised against this view. The first objection is that the will is more widely extended than the intellect, and hence differs from it. The second is that experience teaches us the possibility of suspending our judgment, so as not to assent to the things which we perceive. The third is that we do not require a greater power for affirming a thing to be true which is true than for affirming a thing to be true which is false—in other words, one affirmation does not seem to contain more reality

and the highest liberty. This knowledge also teaches us to bear every form of fortune with equal mind, knowing that all things follow from the eternal decree of God,

“according to that same necessity by which it follows from the essence of a triangle that its three angles are equal to two right angles.”

Then again, the doctrine contributes to social welfare, teaching us to hate no one and to be content

When a medical student offered him two thousand florins, he declined the gift because he thought it would divert him from his studies and occupations. The same medical student, Simon de Vries, wanted to make Spinoza his heir, but he declined the offer and persuaded him to leave the estate to his brother. This was done on condition that Spinoza should receive an annual sum sufficient for his support, and when De Vries died it was proposed that the annuity should be five hundred florins. Spinoza refused to accept

more than three hundred, as he considered five hundred too much. His sisters attempted to deprive him of his patrimony, but he secured his title to it by legal deed, and then voluntarily relinquished his share to them, retaining only a bed and some furniture. The latter portion of his life was spent more or less in seclusion, and during this time he earned a great reputation by his skill in grinding lenses.

The work of Copernicus, Kepler, and Galileo in the science of astronomy finds

a parallel in the work of Spinoza in theology and ethics. If they enlarged men's conception of the immensity of the universe, Spinoza enhanced their idea of God. He removed Him from the petty position which He had held as a local or national Deity, though unfortunately he was so much misunderstood that he was excommunicated from the Synagogue and was cursed by day and night, in sleeping and rising; in going out and in coming in; with all the curses with which Joshua cursed

CHAPTER 7: LEIBNITZ AND TRUE FREEDOM

SOMETHING will now be said about the philosophy of Leibnitz (1646-1716), distinguished not only as a philosopher, but also as a mathematician and man of affairs. Descartes had separated things into two heterogeneous substances, connected by the omnipotence of God, and Spinoza had absorbed both into the one divine substance which he identified with God. This doctrine of Spinoza

independent spiritual units which make up the scale of existence. The universe is composed of monads—individual centres of force—and no monad has any interaction or causal relation with another monad. To have admitted such dependence would have implied a step in the direction of Spinoza's one independent being or substance. If anything happens to a monad this is the necessary outcome of its own nature, and the complete mutual independence of the monads is expressed by

corresponds with that of every other, though this content is represented with infinitely varying degrees of perfection. To explain why I feel pain when I prick my finger, Leibnitz held that any change in one monad was accompanied by a corresponding change in all the other monads which constitute the universe — a change dictated by the monad. The change in one monad does not *cause* this change in all the others, but is *accompanied* by it, and this doctrine of pre-established harmony proceeds from the nature of

the monads as percipient, self-acting beings, not from the arbitrary determination of God. There was no problem for Leibnitz in explaining how the prick in the finger produced a feeling of pain in the mind. The prick does not produce the pain, although it is as if it did. The two are parallel occurrences in two independent centres of spiritual reality.

There is an important distinction between Descartes's and Leibnitz's view of nature — a distinction which may be described as the difference

themselves to the central soul, *by the law of their nature*

“These principles have given me a way of explaining naturally the union, or rather the mutual agreement, of the soul and the organic body The soul follows its own laws, and the body likewise follows its own laws, and they agree with each other in virtue of the pre-established harmony between all substances, since they are all representative of one and

the same universe.”

[Monadology, 78]

Thus is expressed in the figure of the clocks which keep exact time together. There are three ways in which this may happen. The first is through a direct mechanical connection—the common (Locke’s) theory of mutual influence. The second way is to suppose that a workman regulates them each moment — the theory of the Occasionalists. The third way is to postulate such a skilful construction

of the clocks at first that they will always correspond exactly, and this is the way of pre-established harmony. This harmony was a contrivance of the divine knowledge

“which from the beginning formed each of these substances in so perfect, so regular and accurate a manner, that by merely following its own laws, which were given to it when it came into being, each substance is yet in harmony with the other, just as if there were a

mutual influence between them, or as if God were continually putting His hand upon them.”

"The reality of the world is, then, the life of a multitude of immaterial things, which, though developing along lines independent of other monads, yet stand in a certain relation to the universal plan. This plan can be summed up in the one ultimate being—the “supreme monad”—God.

Does this pre-established harmony imply predestination and rigid

nature, each monad attains its true possibilities by the elimination of confused perceptions, and by the attainment of the true ideas which are hidden in the depths of our primitive experience. It is meaningless to speak of the monads as possessing any purpose, because the only purpose in the universe is that which is displayed by God. A true insight into things as they exist for God constitutes man's real freedom. He is free in so far as he is determined by the law of his own nature, not by something from without,

CHAPTER 8: DAVID HUME ON LIBERTY AND NECESSITY

THE history of philosophy is marked by a great controversy between two schools called respectively the “Empiricists” and the “Rationalists.” The

Empiricists maintained that all our knowledge was derived from experience, and this school is best represented by the British philosophers, Locke, Berkeley, and Hume. The Rationalists are represented by the

Continental philosophers of the seventeenth century, especially Descartes and Leibnitz, and this school maintained that, in addition to what we know by experience, there are certain innate ideas and innate principles, and that these are known independently of experience. As this subject is closely associated with questions relating to liberty and necessity, it will be better to deal briefly with certain views on causation which, since the days of Hume, have been given by the Empiricist school of

philosophy.

Hume (1711-76) held that causation is only a feeling of expectation due to custom, so that causation becomes entirely subjective

“When any natural object or event is presented, it is impossible for us, by any sagacity or penetration, to discover, or even conjecture, without experience, what event will result from it, or to carry our foresight beyond that object, which is immediately present to the memory and senses”

*[Inquiry Concerning
Human
Understanding].*

He defines a Cause as

“an object followed by
another, and whose
appearance always
conveys the thought of that
other.”

In his *Treatise of Human
Understanding* he tells us

“What we call a *mind* is
nothing but a heap or
collection of different
perceptions united

together by certain relations and supposed, though falsely, to be endowed with a perfect simplicity or identity.”

From this he infers that there is no absurdity in separating any particular perception from the mind, nor in conjoining an object to the mind. There are, therefore, three essential elements in Hume's doctrine

(1) That reality is only a succession of sensuous impressions;

(2) That causation is the

follows

“By the will I mean nothing but the internal impression we feel and are conscious of, when we knowingly give rise to any new notion of our body, or new perception of our mind”

He points out that the actions of matter are necessary actions and whatever is on the same footing with matter must also be acknowledged to be necessary. Before inquiring whether this is so with the

without a uniform and regular conjunction of objects with one another we should never arrive at any idea of cause and effect. Two particulars are considered essential to necessity—the constant union and the inference of the mind—and wherever these are discovered, necessity must be acknowledged. An examination of the course of human affairs shows clearly that men's actions have a constant union with their motives, tempers, and circumstances, and a uniformity and regular

exist Human laws are based on rewards and punishments, and it is considered a fundamental principle that these motives act both as incentives to good and deterrents from evil. Whatever name we may wish to give this influence, considering that it is usually associated with the action, it must be regarded as a cause and an instance of necessity. The argument is equally valid when applied to divine laws, whether the Deity is regarded as acting in a magisterial capacity or as the avenger of crimes on

for this reason he should not be punished for it.

The hypothesis of liberty would lead to the conclusion that a man is as untainted after he has committed the most horrid crime as he was at birth, and his character is in no way concerned in his action “Tis only upon the principle of necessity, that a person acquires any merit or demerit from his actions, however the common opinion may incline to the contrary” The first and second volumes of the *Treatise*, containing Book I, “Of the Understanding,”

Growth of a Sect called Freethinking, he impugned the trustworthiness of the text of Scripture. It need not occasion much surprise that the two Freethinkers should independently pursue a similar line of reasoning. One point in Collins's work is worth noticing—his assertion that it is self-evident that nothing that has a beginning can be without a cause. Dr Samuel Clarke, a celebrated philosopher and divine, who maintained that freedom of the will was essential to religion and morality, attacked Collins's

position, but no reply was made by Collins until the year of Clarke's death, 1729, when he published a reply, *Liberty and Necessity*. It would imply an examination of endless controversies in theology if this work dealt with the views of the various divines who were interested in the subject of Necessitarianism, and it would serve no useful object to pursue this line of thought. Reference should, however, be made to Jonathan Edwards (1703-58), an American metaphysician and divine

nature. When Adam ate of the forbidden fruit the divine nature was withdrawn from him, and as a consequence he was left with the “natural” principle. His nature thus became corrupt, but *God did not infuse any evil thing into it*. Edwards’s fame rests chiefly on his treatise on *The Freedom of the Human Will*, and, though he anticipates Hume in certain points, he did not read Hume until his work was published. Evidently he was not greatly impressed by Hume, because, speaking

of him and other writers, he says

“I am glad of an opportunity to read such corrupt books, especially when written by men of considerable genius, that I may have an idea of the notions which prevail in our country.”

Edwards defines the will as that by which the “mind chooses anything,” and by “determining the will” he means “causing that the act of the will or choice should be thus and not otherwise”

intelligent Author and Governor of Nature, and while his reasoning is an example of strength in analogical argument, it must be admitted that it is also an example of weakness. It is incapable of yielding anything more than a certain degree of probability, though Butler's caution and fairness of mind will be denied by very few. He argues that it is just as difficult to believe that Nature proceeded from and is ruled by God as it is to concede that Christianity has a divine origin. Most of the Deists admitted a

divine Author of Nature, and hence this line of reasoning against them had a certain cogency. As a weapon against present-day scepticism, which does not necessarily accept some of Butler's fundamental assumptions, it is utterly useless, and a modern apologist would find it difficult to sustain an argument intended to prove that the God of Nature is also the God of Revelation.

In Chapter VI of the *Analogy*, "Of the Opinion of Necessity, considered as influencing Practice,"

Chapter V.]

CHAPTER 9: KANT'S DOCTRINE OF FREE WILL

THE great German thinker, Immanuel Kant (1724-1804), is best known through his system of philosophy, though he wrote numerous treatises on other subjects, including natural science and theology. In his *Allgemeine Natur—Geschichte* and *Theorie des Hunnmels*, published anonymously in 1755, he has important speculations on the nebular hypothesis, though in

certain respects he was anticipated here by J. Wright of Durham. Among his other works reference may be made to those dealing with retardation in the rotation of the earth, owing to the action of the moon in raising tides, the causes of earthquakes, theory of winds, volcanoes in the moon, physical geography, and with other subjects. Some of his writings on theology involved him in difficulties with the Government. This is not surprising when it is remembered that the tendency of his philosophy

was towards a moral Rationalism which could not be reconciled with the teachings of the Lutheran Church. After the first part of his book, *On Religion within the Limits of Reason Alone*, had appeared in the *Berlin Journal*, the publication of the remainder was forbidden. The work was published later in full in Königsberg—an act which severely restricted Kant's future activities in lecturing and writing, though the death in 1797 of the King, Frederick William II, exonerated him from the

promise which had been exacted from him, not to write or lecture on religious subjects. In Kant's earlier writings it is possible to trace the various stages through which he passed from the notions of philosophy prior to his days to those new methods which characterize his critical philosophy. Reference has been made in the previous chapter to Wolff's systematization of Leibnitz's philosophy, but Kant was not satisfied with certain parts of the Wolffian system. Thus, he held that the

Leibnitz-Wolffian philosophy had assigned an erroneous point of view to the investigations into the nature and origin of our cognitions. This system regarded the distinction between the sensuous and the intellectual as logical, but Kant held that it was transcendental. It must be admitted that it is extremely difficult to give a short statement of Kant's philosophy without incurring the risk of conveying an utterly erroneous conception. He has been badly misunderstood and

sometimes quoted in support of views to which his philosophical system gave no sanction. As one instance of this reference may be made to Ernst Haeckel, who cites Kant's view's on free will in *The Riddle of the Universe*, Chapter VI, "The Nature of the Soul," but obviously Haeckel misunderstood some of Kant's doctrine. This will be dealt with later when Haeckel's views are considered (see Chapter XI). In the present chapter a brief account will be given of Kant's system, especially that part of it which is

what is true or otherwise, it should carry out an inquiry into our intellectual faculties to see how far they are capable of apprehending the real nature of things. He gave the title “critical” philosophy to his system, and to each of his three

[These are Critique of Pure Reason, Critique of Practical Reason, Critique of Judgment]

chief works the title *Critique* was prefixed—the criticism of some intellectual faculty.

synthetic. A synthetic judgment adds to our conceptions of the subject a predicate not contained in it, and which no analysis could ever have discovered therein. On the other hand, an analytical judgment adds in the predicate nothing to the conception of the subject. It merely analyses it into its constituent conceptions, which were thought already in the subject, though in a confused manner. As an example, take the proposition “All bodies are extended”. This is an analytical judgment

because it is unnecessary to go beyond the conception of body to discover that extension is connected with it. It is only necessary to analyse the conception or become aware of the various properties which I think in that conception, to discover “extended” in it. On the other hand, when I say, “All bodies are heavy,” the predicate is something entirely different from that which I think in the mere conception of a body. The addition of such a predicate therefore produces a synthetic judgment.

Judgments of experience

are always synthetical; it would obviously be absurd to ground an analytical judgment on experience, because in forming such a judgment it is not necessary to go outside the sphere of my conceptions. Mathematical judgments are always synthetical—a fact which seems to have escaped previous analysts of the human mind—and proper mathematical propositions are always judgments *a priori*, and not empirical. This is because they carry along with them the conception of necessity, and this cannot be given by

experience. The Science of Natural Philosophy (Physics) contains in itself synthetical judgments *a priori* as principles. As an instance, take the proposition. "In all changes of the material world, the quantity of matter remains unchanged" In the conception of matter I do not think of its permanency, but only its presence in space which it fills, and hence I go out of and beyond the conception of matter to think on to it something *a priori*, which I did not think in it The proposition is, therefore,

experience far behind.

The great problem of pure reason is contained in the question, “How are synthetical judgments *a priori* possible?” On the solution of this problem, or upon sufficient proof of the impossibility of such judgments, depends the existence or downfall of the science of metaphysics. Although Hume, among all philosophers, came nearest to this problem, he stopped short at the synthetical proposition of *the* connection of an effect with its cause, and insisted that such a proposition *a priori*

was impossible.

“According to his conclusions, then, all that we term metaphysical science is a mere delusion, arising from the fancied insight of reason into that which is in truth borrowed from experience, and to which habit has given the appearance of necessity. Against this assertion, destructive to all pure philosophy, he would have been guarded, had he had our problem before his eyes in its universality. For

he would then have perceived that, according to his own argument, there likewise could not be any pure mathematical science, which assuredly cannot exist without synthetical propositions *a priori* — an absurdity from which his good understanding must have saved him.”

[Critique of Pure Reason (translated by J M. D Meiklejohn), pp 12-13.]

Kant’s definition of *a priori* knowledge must be

carefully considered, otherwise his position is liable to be misunderstood. He points out that, while all our knowledge begins with experience, it does not follow that it all originates *from* experience. It is possible that experience is made up of two elements, one received through impressions of sense, the other supplied from itself *by our faculty of knowledge on occasion of those impressions*. It is therefore important to investigate the problem as to whether there is knowledge which is

independent of experience, and even of all impressions of sense.

“Knowledge of this kind is called *a priori*, in contradistinction to empirical knowledge, which has its source *a posteriori*—that is, in experience. But the expression ‘*a priori*’ is not as yet definite enough adequately to indicate the whole meaning of the question above stated. For, in speaking of knowledge which has its source in experience, we

are wont to say, that this or that may be known *a priori*, because we do not derive this knowledge immediately from experience, but from a general rule, which, however, we have itself borrowed from experience. Thus, if a man undermined his house, we say, ‘he might know *a priori* that it would have fallen’; that is, he needed not to have waited for the experience that it did actually fall. But still, *a priori*, he could not have known even this much.

For, that bodies are heavy, and, consequently, that they fall when their supports are taken away, must have been known to him previously, by means of experience.

“By the term ‘knowledge *a priori*,’ therefore, we shall in the sequel understand, not such as is independent of this or that kind of experience, but such as is absolutely so of *all* experience. Opposed to this is empirical knowledge, or that which is possible only *a posteriori*, that is,

through experience. Knowledge *a priori* is either pure or impure. Pure knowledge *a priori* is that in which no empirical element is mixed up. For example, the proposition, 'Every change has a cause,' is a proposition *a priori*, but impure, because change is a conception which can only be derived from experience"

What criterion exists by which we shall distinguish a pure from an empirical cognition? If we have a proposition containing the

idea of necessity in its very conception, it is judgment *a priori*, and, in addition, if it is not derived from any other proposition, unless from one equally involving the idea of necessity, it is absolutely *a priori*. Also, if a judgment carries with it strict and absolute universality, it is not derived from experience, but is valid absolutely *a priori*. It has already been pointed out that the human intellect is in possession of certain judgments which are pure *a priori*, as in the case of

mathematics. Indeed, it is unnecessary to search for examples of principles existing *a priori* in cognition, because such principles are the indispensable basis of the possibility of experience itself, for which reason they prove their existence *a priori*. If all the rules on which experience depends were merely empirical, and so fortuitous, from whence could our experience acquire certainty? It may be accepted, therefore, that we possess and

exercise a faculty of pure *a priori* cognition, and that the tests for such cognition are universality and necessity.

We can now return to the question “How are necessary judgments possible?” As has been already shown, there are two elements in our experience—the sense material to which Hume had reduced all the conscious life, and, in addition, certain relating activities of the mind “The effect of an object upon the faculty of

representation, so far as we are affected by the said object, is sensation. That sort of intuition which relates to an object by means of sensation, is called an empirical intuition.

The undetermined object of an empirical intuition is called *phenomenon*. That which in the phenomenon corresponds to the sensation, I term its *matter*, but that which affects that the content of the phenomenon can be arranged under certain relations, I call its *form*.

But that in which our sensations are merely arranged, and by which they are susceptible of assuming a certain form, cannot be itself sensation. It is then, the matter of all phenomena that is given to us *a posteriori*; the form must lie ready *a priori* for them in the mind and consequently can be regarded separately from all sensation”

[*Critique of Pure Reason*,
“*Transcendental Aesthetic Introductory*”]

freedom are necessarily fallacious, it is also true that all disproofs must also be fallacious In Kant's time these were the chief articles of Natural Religion, but, as they did not lie within the sphere of knowledge, they could be removed to that of faith By faith Kant meant holding something as true on grounds which were sufficient to act upon, but such grounds would not fully satisfy our intelligence. Why should Kant think that these were sufficient grounds to act upon for holding it true that there was a God, that

we were immortal, and that our wills were free? It will be sufficient to deal with the last point—the chief object of our inquiry. The natural law that everything which happens must have a cause, and that the causality of this cause must have a phenomenal cause, so that all events are empirically determined in an order of nature, is a law of the understanding, to which no exception can be admitted. Allowing the existence, that of natural necessity in the world of phenomena, is it possible to consider an effect as at

the same time an effect of nature and an effect of freedom ? It is important to bear in mind that no phenomenal cause can absolutely and of itself begin a series, a *primal* action—in other words, an action which forms an absolute beginning—is beyond the causal power of phenomena.

“Now, is it absolutely necessary that, granting that all effects are phenomena, the causality of the cause of these effects must also be a

phenomenon, and belong to the empirical world? Is it not rather possible that, although every effect in the phenomenal world must be connected with an empirical cause, according to the universal law of nature, *this empirical causality may be itself the effect of a non-empirical and intelligible causality—its connection with natural causes remaining nevertheless intact?* Such a causality would be considered, in reference to phenomena, as the

primal action of a cause,
which is in so far,
therefore, not
phenomenal, but, by
reason of this faculty or
power, intelligible;
although it must, at the
same time, as a link in the
chain of nature, be
regarded as belonging to
the sensuous world”

*[Critique of Pure
Reason, Book 2, Chap. 3,
pp 336-7]*

(Attention is drawn
specially to the words in
italics, not in the text,
which are relevant for the

unconditionally. This law is stated in his *Metaphysics of Morals*, Section 2—

“Act only on that maxim (or principle) which thou canst at the same time will to become a universal law.”

As an illustration of this universal law Kant takes the case of breaking promises. It is wrong to break a promise, because such an action could not become a universal principle. If it did, promises would cease to be made,

“The explanation of the possibility of categorical imperatives, then, is that the idea of freedom makes me a member of the intelligible world. Were I a member of no other world, all my actions *would* as a matter of fact always conform to the autonomy of the will. But as I perceive myself to be also a member of the world of sense, I can say only that my actions ought to conform to the autonomy of the will”

[Metaphysic of
Morality (Watson's

translation), p 255].

The realization of the claims of the moral law, and not knowledge, is thus the guarantee of the intelligible world, and with the intelligible world postulated to justify freedom and morality, Kant proceeds to show how a practical assurance of God and immortality is made possible. We do not propose dwelling on this argument, nor is it suggested that detailed criticism of his philosophy is possible within the confines of this small work

been led to conjecture it to be This principle should be observed although our actions, when once done, can no longer appear to us as the effects of our own free will—a supposition which we had to make to do them. There was left the possibility of a realm in which the spiritual demands of life, equally with scientific reason, is entitled to induce belief, but there were obvious gaps between the postulates of the spiritual life and the results of reason. Kant tries to meet this problem in the *Critique*

of Judgment (1790), in which he refers to certain appearances or phenomena which cannot very well be described apart from the notion of a final cause without which we are unable to *act*. These appearance include first of all the aesthetic experiences, and although we do not think of any particular object served by the beauty of anything, yet we do not think that the beauty was a pure accident, but was produced by some intelligence. However, in such case? there is no justification for attributing

beauty to the objects as they exist for the scientific understanding. Indeed, this can often explain the beauty on mechanical principles alone. The other phenomena which we are unable to explain without an end in view are organic beings. Mechanical explanation can go a certain length, but finally something remains—adaptation of parts to the ends of the whole—which is impossible to explain on mechanical principles. In this case also we are only justified in saying that the nature of these objects

cannot be explained unless the supposition of design is introduced. We must not assert that the phenomena could not have come into existence in some other way.

The final conception of the Kantian philosophy can be described as that of an ethical teleology, and Kant has summarized it in a very fine passage towards the end of the *Critique of Pure Reason*:

“But this systematic unity of ends in this world of intelligences—which, as

mere nature, is only a world of sense, but as a system of freedom of volition, may be termed an intelligible, that is, moral world (*regnum gratia*)—leads inevitably also to the teleological unity of all things which constitute this great whole, according to universal natural laws,—just as the unity of the former is according to universal and necessary moral laws,—and unites the practical with the speculative reason. The world must be

represented as having originated from an idea, if it is to harmonize with that use of reason without which we cannot even consider ourselves as worthy of reason—namely, the moral use, which rests entirely on the idea of the supreme good Hence the investigation of nature receives a teleological direction, and becomes, in its widest extension, physico-theology But this, taking its rise in moral order as a unity founded on the essence of

freedom, and not accidentally instituted by external command, establishes the teleological view of nature on grounds which must be inseparably connected with the internal possibility of things. This gives rise to a *transcendental theology*, which takes the ideal of the highest ontological perfection as a principle of systematic unity; and this principle connects all things according to universal and necessary natural laws,

because all things have their origin in the absolute necessity of the one only Primal Being.”

CHAPTER 10: THE VIEWS OF JOHN STUART MILL

THE reader must not expect that this small work will deal with every philosopher, theologian, or scientist who has entered the arena in the controversy between Necessitarians and Libertarians. Reference to a few of the outstanding advocates for each system is all that can be attempted, and in the present chapter something will be said about the views of John Stuart Mill (1806-73).

Before examining his doctrine on the freedom of the will, it will be necessary to say something about his views on causation. He adopted the fundamental empiricist position that nothing is given as a basis of knowledge but separate and particular sensations, and that originally these were mere subjective states of feeling. The causes with which he is concerned are not *efficient* but *physical* causes. "They are causes in that sense alone in which one physical fact is said to be the cause of another." He does not consider that

he is called upon to give an opinion on the efficient causes of phenomena or to say if such causes exist

“The Law of Causation, the recognition of which is the main pillar of inductive science, is but the familiar truth that invariability of succession is found by observation to obtain between every fact in nature and some other fact which has preceded it, independently of all considerations respecting the ultimate mode of production of phenomena,

and of every other question regarding the nature of ‘things in themselves ’”

[A System of Logic, III, v, § 2].

Mill does not hold that invariable sequence necessarily exists between a consequent and a *single* antecedent. Indeed, the sequence generally subsists between a consequent and the sum of several antecedents, and the concurrence of all of them is necessary to produce the consequent.

Philosophically speaking, a cause is the sum total of all the conditions, positive and negative, taken together. The negative conditions may be summed up under the head of “absence of preventing or counteracting causes.” Mill adds that the sequence, in addition to being invariable, must also be unconditional, by which he means what writers imply when they say that “the notion of a cause involves the idea of necessity.” This addition is important because, without it, we might say that day was the

antecedent and sequence, but in the case of our voluntary actions we are conscious of power before we have experience of results. In an act of will there is a feeling of energy or force, and this is *a priori* knowledge. For this reason volition cannot be regarded merely as an unconditional antecedent, it is an efficient cause—that is, a cause in an entirely different sense from that in which physical phenomena are said to cause one another. It is a simple step to the further doctrine that volition is the *sole* efficient cause of all

with it, while the action of matter on matter seems to require something else to explain it? Mill holds that those who argue in this way rest their case on an appeal to the inherent laws of our conceptive faculty, mistaking for the laws of that faculty its acquired habits, “grounded on the spontaneous tendencies of its uncultured state” The mind has a natural tendency to attempt to facilitate its conception of unfamiliar acts by assimilating them to others which are familiar. Now our voluntary acts are the

Essays on the Active Powers (Essay IV, Chapter 3) to support his thesis, and the last portion of this is reproduced —

“As philosophy advances, life and activity in natural objects retires, and leaves them dead and inactive. Instead of moving voluntarily, we find them to be moved necessarily, instead of acting, we find them to be acted upon; and Nature appears as one great machine, where one wheel is turned by another, that by a third,

and how far this necessary succession may reach, the philosopher does not know.”

We are now in a position to consider Mill's views on the question of the law of causality in its application to human actions His definition of philosophical necessity is given in his work previously referred to and is as follows.—

“That, given the motives which are present to an individual's mind, and given likewise the

character and disposition of the individual, the manner in which he will act might be unerringly inferred, that if we knew the person thoroughly, and knew all the inducements which are acting upon him, we could foretell his conduct with as much certainty as we can predict any physical event. This proposition I take to be a mere interpretation of universal experience, a statement in words of what everyone is internally convinced of. No one who believed that he knew

thoroughly the
circumstances of any case,
and the characters of the
different persons
concerned, would hesitate
to foretell how all of them
would act. . . . The
religious metaphysicians
who have asserted the
freedom of the will have
always maintained it to be
consistent with divine
foreknowledge of our
actions; and if with divine,
then with any other
foreknowledge. We may
be free, and yet another
may have reason to be
perfectly certain what use

we shall make of our freedom. It is not, therefore, the doctrine that our volitions and actions are invariable consequents of our antecedent states of mind, that is either contradicted by our consciousness or felt to be degrading”

[A System of Logic, VI, l, § 2]

Mill points out that mere constancy of succession does not appear to many people to be a sufficiently strong bond of union for so peculiar a relation as that of

“The causes, therefore, on which action depends are never uncontrollable, and any given effect is only necessary provided that the causes tending to produce it are not controlled.”

It is important to notice the difference between the doctrine of necessity and fatalism. The true Necessitarian doctrine teaches that whatever is about to happen *will be the infallible result of the causes which produce it*, but a Fatalist believes that,

end, and the action itself becomes an object of desire. It may be remarked that Mill was an exponent of the doctrine of Psychological Hedonism—the theory that the ultimate object of desire is pleasure. In his *Utilitarianism* he says. “Human nature is so constituted as to desire nothing which is not either a part of happiness or a means of happiness” (p. 58). A discussion of ethical systems is outside our scope, and we offer no criticism of Mill’s utilitarian doctrine. Dr. Sidgwick, in his *Methods of*

CHAPTER 11: PROF ERNST HAECKEL AND THE FREEDOM OF THE WILL

HAECKEL does not require any introduction to the reader. His writings are well known, and have been produced in a cheap form which has made them accessible to a very wide circle of readers. He must be allowed the credit of popularizing Darwinism with the German public, in spite of a certain amount of opposition, but we can scarcely give him credit for the humility of mind which

good is done to the cause of knowledge and progress by such methods If the present writer were called upon to criticize Haeckel's doctrine *in extenso*, he would be obliged to admit a considerable amount that was valid in many of his views (some of which might have been expressed with more courtesy), and also to admit that much of his teaching is quite untenable. The present chapter is restricted to an extremely limited part of his work—his views on the question of the freedom of the human will. These arise

incidentally in some of his writings, and quotations will be given from two of these: (1) *The Riddle of the Universe*; (2) *The Evolution of Man*. References to these works will be denoted by (1) and (2) respectively, and the quotations are included under A, B, C, D, E, F.

A. In (1), Chapter I, Haeckel refers to a speech by Emil du Bois-Reymond, delivered in 1880, in the Leibnitz session of the Berlin Academy of Sciences, in which seven world-enigmas are

enumerated. The last of these is the question of the freedom of the will, and of this Haeckel says “The seventh and last, the freedom of the will, is not an object for critical, scientific inquiry at all, for it is a pure dogma, based on an illusion, and it has no real existence”

B. In the same work, Chapter VI, “The Nature of the Soul,” he says “The dogma of ‘free will,’ another essential element of the dualistic psychology, is similarly irreconcilable with the universal law of

substance”

C. In the same chapter we read “The most interesting example of such an entire change of objective and subjective psychological opinions is found in the case of the most influential leader of German philosophy, Immanuel Kant. The young, severely *critical* Kant came to the conclusion that the three great buttresses of mysticism—‘God, freedom, and immortality’—were untenable in the light of ‘pure reason’; the older, *dogmatic* Kant, found that

these three great hallucinations were postulates of ‘practical reason,’ and were, as such, indispensable ”

D. In Chapter VII, “Psychic Gradations,” he returns to the subject of free will and says “The importance of the question is also seen in the fact that Kant put it in the same category with the questions of the immortality of the soul and belief in God He called these three great questions the indispensable ‘postulates of practical reason,’ though he had

concludes the chapter with the following words.—

E. “The great struggle between the determinist and the indeterminist, between the opponent and the sustainer of the freedom of the will, has ended to-day, after more than 2,000 years, completely in favour of the determinist. The human will has no more freedom than that of the higher animals, from which it differs only in degree, not in kind. In the last century the dogma of liberty was fought with general

philosophic and
cosmological arguments.
The nineteenth century has
given us very different
weapons for its definitive
destruction—the powerful
weapons which we find in
the arsenal of comparative
physiology and evolution.
We know now that each act
of the will is as fatally
determined by the
organization of the
individual and as
dependent on the
momentary condition of his
environment as every other
psychic activity. The
character of the inclination
was determined long ago by

images of objects which are above the ground being formed. A subject like the freedom of the will, to which philosophers have devoted so much serious thought for thousands of years, cannot be so lightly brushed aside.

B. It is essential that we should have very clear ideas on this “Law of Substance,” and an explanation of it appears in (1), Chapter XII. It should be noticed that this very important law includes two supreme laws of different origin and age. The first of

when Haeckel wrote these words. In his time physicists were prepared, on the whole, to accept matter and energy as fundamental factors in the inorganic world, and the conservation of matter as well as the conservation of energy were accepted as important generalizations. It is scarcely necessary to say that a revolution has taken place since then. The subatomic energy which was first observed leaking out very slowly from the atoms of radioactive bodies can, in certain circumstances, surpass by a

factor of millions the energy which is produced in the ordinary chemical reactions. The study of such energy and of the conditions which are necessary for its liberation has allowed the physicist to explain the radiation of our sun and other stars. The sun is losing weight at the rate of 250 million tons a minute, and this “annihilation of matter” provides the necessary energy emitted by the sun in the form of light and heat, a minute fraction of which falls upon our earth. Without this all life, so far

as we know, would cease to exist. Assuming that matter is being annihilated, or, more correctly, transformed into radiation, the law of the conservation of matter disappears and the conservation of mass and of energy becomes the same thing. In the words of Sir James Jeans

“The two fundamental cornerstones of nineteenth-century physics, the conservation of matter and the conservation of energy, are both abolished, or

rather are replaced by the conservation of a single entity which may be matter and energy in turn Matter and energy cease to be indestructible and become interchangeable. .

”

[The Universe Around Us, p. 186]

Haeckel seems to have anticipated the modern physicist in certain respects. In the chapter under discussion he says:

“The conviction that these two great cosmic

theorems, the chemical law of the persistence of matter and the physical law of the persistence of force, are fundamentally one, is of the utmost importance in our monistic system.”

Reverting to B, in which, as we saw, the dogma of free will is irreconcilable with the universal law of substance, according to Haeckel, recent developments in physical science do not contradict his law of substance. Indeed the opposite is the case, for,

material has been differentiated out of psychoplasm, and, as he tells us, his conception in this sense is materialistic. No one will object to a materialistic view so long as consistency is observed, but it is difficult to reconcile his views which have been given above with those expressed in another part of Chapter XII where he lays down three theses as indispensable for a truly monistic view of substance. The first only is quoted, as relevant for our present purpose: "The two fundamental forms of

Haeckel deduces the existence of this harmonious unity from the general principle with which he set out—the Law of Substance. In the work referred to experimental evidence dealing with the reactions of unicellular organisms and higher forms of life has been cited. On the whole it would seem that the weight of evidence is in favour of automatism in the lower organisms—but in higher forms of life the results are often of a contradictory nature. Further reference will be made to some of the

CHAPTER 12: THE PROBLEM IN THE LIGHT OF RECENT DEVELOPMENTS IN PHYSICS

IN a previous chapter [*Chapter 2*] we saw that Democritus gave a materialistic view of the universe which held a primary place in philosophical thought. Atoms were supposed to be the ultimate material of all things, spirit included, and to have existed from all eternity. At the end of the last century it was shown

of Edinburgh during the previous year, was in some respects epoch-making. As he pointed out in his chapter on “Causation,” physics came down heavily on the side of predestination in the old conflict between free will and predestination. Its moral sympathy had been with the view that the future is foretold in the configurations of the past:—

**Yea, the first Morning of
Creation wrote
What the last Dawn of**

Reckoning shall read
[Quoted from Omar
Khayyam]

Eddington admits in this chapter that it seemed incredible to think that predetermination should include life and consciousness, but he was unable to form a satisfactory conception of any causal sequence which should be other than deterministic. However, he tells us that his attitude to the question had altered, and, in consequence of the advent of the quantum

theory,

“physics is no longer pledged to a scheme of deterministic law”

In rewriting this chapter a year after the lecture was delivered he adopts an attitude more hostile to determinism, and this arose from accepting the Principle of Indeterminacy. This principle, formulated in 1927 by Heisenberg, sometimes called the Principle of Uncertainty, is as follows:

“A particle may have position or it may have velocity but it cannot in any exact sense have both.”

Sir James Jeans, who is an expert at making extremely abstruse subjects clear to the ordinary man, has given an excellent exposition of this principle. To understand his explanation a word must first of all be said about the orbits of electrons and also about Planck's Constant. Electrons are conceived as moving in very definite

orbits around the central nucleus, and also as incapable of occupying intermediate positions between one orbit and another. When an electron's excited by heat or electric action or other means it jumps into the next orbit away from the nucleus, and absorbs energy in doing so. Conversely, when it falls back into its original orbit it emits the same quantity of energy. In these jumps the quantity of energy absorbed or emitted is just sufficient to lift an electron from one orbit to another

Radiation of each particular wave-length has a certain amount of energy associated with it, and this amount depends on the wave-length, and on nothing else. This energy is called the “quantum,” which is supposed to be proportional to the number of vibrations of the radiation per second. As the number of vibrations a second—the frequency—is inversely proportional to the wave-length of the radiation, the red light, which has long wave-length, has feeble quanta compared with the

violet light. If the frequency of the radiation is denoted by ν , the quantum of energy is $h\nu$, where h is a universal constant of nature—Planck's constant. It is obvious that when an atom emits energy which takes the form of a periodic oscillation or wave, if the amount of energy is divided by the number of oscillations per second, the result will be Planck's constant, and this is known to be 6.55×10^{-27} erg seconds. The quanta of radiation which is emitted or absorbed by an atom are now generally known by

“It is like trying to time a hundred yards race with a grandfather clock that only ticks seconds.”

[7, P232 The numbers refer to the works in the list at the end of the chapter.]

Physicists are therefore confronted with the dilemma that one kind of photons, carrying a large amount of energy, give inexact information about the present condition of the universe, while another kind, carrying less energy, are too slow in telling their

“The future is a combination of the causal influences of the past together with unpredictable elements—unpredictable not merely because it is impracticable to obtain the data of prediction, but because no data connected causally with our experience exist.

. . . Those who maintain a deterministic theory of mental activity must do so as the outcome of their study of the mind itself and not with the idea that they are thereby making it

more conformable with our experimental knowledge of the laws of inorganic nature”.

Eddington is convinced that modern physics has become more definitely hostile to the postulate that the future is predetermined, with the discovery of the Principle of Indeterminacy. He gives a simple case where we think we can predict the future. Let us assume that we have a particle with known position and velocity at the present instant. If we

show that the view that a particle necessarily has a definite velocity now amounts to disguising a piece of the unknown future as an unknowable element of the present

“Classical physics foists a deterministic scheme on us by a trick, it smuggles the unknown future into the present, trusting that we shall not press an inquiry as to whether it has become any more knowable that way”.

This same principle

extends to every kind of phenomenon that we attempt to predict, but generally the need for accuracy is buried under a mass of averages.

If there is no causality in the external world, many might consider that this implies an end to all true science, but Eddington does not hold this view. The point which we shall now consider is the effect of this doctrine upon the human will, and on this Eddington says:

“A complete determinism

of the material universe cannot be divorced from determinism of the mind. . . . Conversely, if we wish to emancipate mind, we must to some extent emancipate the material world also”.

Take as an example the prediction of the weather a year ahead. To make this prediction we should require to know not only a lot about present conditions on the earth; it would be necessary to examine the state of the sun to make predictions on

simultaneously with the physical phenomena. The Materialist also assumes that the result of applying physical laws to the brain is fully determinate. Eddington adds:

“It is meaningless to say that the behaviour of a conscious brain is precisely the same as that of a mechanical brain if the behaviour of a mechanical brain is left undetermined. If the laws of physics are not strictly causal the most that can be said is that the

behaviour of the conscious brain is one of the possible behaviours of a mechanical brain. Precisely so; and the decision between the possible behaviours is what we call volition”

One more passage will be quoted, and readers will be able to judge whether some of the criticisms of the views expressed are justifiable. Eddington continues

“A mental decision to turn right or left starts one of

two alternative sets of impulses along the nerves to the feet. At some brain centre the course of behaviour of certain atoms or elements of the physical world is directly determined for them by the mental decision—or, one may say, the scientific description of that behaviour is the metrical aspect of the decision. It would be a possible though difficult hypothesis to assume that very few atoms (or possibly only one atom) have this direct contact with the conscious

decision, and that these few atoms serve as a switch to deflect the material world from one course to the other. But it is physically improbable that each atom has its duty in the brain so precisely allotted that the control of its behaviour would prevail over all possible irregularities of the other atoms. If I have at all rightly understood the processes of my own mind, there is no finicking with individual atoms ... It seems that we must attribute to the mind

power not only to decide the behaviour of atoms individually but to affect systematically large groups—in fact to tamper with the odds on atomic behaviour. This has always been one of the most dubious points in the theory of the interaction of mind and matter.”

Professor H. Levy, referring to the early part of this quotation, and expressing his disapproval of the views which Eddington has set forth, says that none of his

a large amount of trigger action, as when a minute physical change in a nerve releases the pent-up energy of a muscle. He conjectures that the physical effects of volition have their origin in structures containing many billions of atoms, and if such a unit behaved like an inorganic system of similar mass, there would be sufficient indeterminacy to allow appreciable freedom. Quoting Eddington's own words

“My own tentative view is that this ‘conscious unit’

does in fact differ from an inorganic system in having a much higher indeterminacy of behavior—simply because of the unitary nature of that which in reality it represents, namely the Ego”

Having accepted the view that the activities of consciousness do not violate the laws of physics, Eddington admits that the nature of responsibility brings us to a dilemma which he, in common with hundreds of others, is

unable to solve Although we feel that we can change our nature to some extent—in other words, we can reform or deteriorate—are we certain that this reforming or deteriorating impulse is not also within our natures If it is not in us, how can we be responsible for it? He is not prepared to accept the solution sometimes offered that responsibility is a self-contradictory illusion, and responsibility seems to him to be one of the fundamental facts of our nature. As a theory of matter must correspond to

our perceptions of matter, “so a theory of the human spirit has to correspond to our inner perception of our spiritual nature.”

It must be pointed out that not all physicists agree with Eddington's point of view, and some of them are out-and-out Determinists in spite of, or even because of, developments in atomic physics. Thus Max Planck holds that the quantum hypothesis will someday find its exact expression in equations which will be a more exact formulation of the laws of causality, and he thinks that this law can

be extended to the activities of the human mind. He writes:

“The principle of causality must be held to extend even to the highest achievements of the human soul. We must admit that the mind of each one of our greatest geniuses—Aristotle, Kant or Leonardo, Goethe or Beethoven, Dante or Shakespeare—even at the moment of its highest flights of thought or in the most profound inner workings of the soul, was

subject to the causal fiat and was the instrument in the hands of an almighty law which governs the world.”

Einstein supports this view. He says:

“I am entirely in agreement with our friend Planck in regard to the stand which he has taken on this principle. He admits the impossibility of applying the causal principle to the inner processes of atomic physics under the present

state of affairs; but he has set himself definitely against the thesis that from this *Unbrauchbarkeit* or inapplicability we are to conclude that the process of causation does not exist in external reality. Planck has really not taken up any definite standpoint here. He has only, contradicted the emphatic assertions of some quantum theorists and I agree fully with him. And when you mention people who speak of such a thing as free will in nature it is difficult for me to find a suitable reply. . . .

Honestly I cannot understand what people mean when they talk about freedom of the human will.”

Those who follow out Planck's arguments may conclude that there are inconsistencies in his position. In Chapter 5 of the work referred to he says:

“The fact is, there is a point, one single point in the immeasurable world of mind and matter, where science, and therefore

every causal method of research, is inapplicable, not only on practicable grounds, but also on logical grounds, and will always remain inapplicable. This point is the individual ego. It is a small point in the universal realm of being; but in itself it is a whole world embracing our emotional life, our will, and our thought. This realm of the ego is at once the source of our deepest suffering and at the same time of our highest happiness. Over this realm

no outer power of fate can ever have sway, and we lay aside our own control and responsibility over ourselves only with the laying aside of life itself.”

Other physicists have adopted an attitude of neutrality the subject, holding the view that the contribution of modern physics to the problem of free will is nothing. Among these is included Professor Herbert Dingle, an astrophysicist of distinction, whose conclusion, after a most

careful examination of the problem, is:

If we assume that the behaviour of atoms is not strictly determined, it is useless to argue that as the brain is composed of atoms, therefore the mind is not strictly determined, because consciousness is not derived from atoms.

Others again have agreed more or less with Eddington, and among these is Weyl, who explains how the limits to determinism, if there are

any, will be found bypassing along from the large-scale phenomena of astronomy and physics, which necessarily appear to be deterministic, to the small-scale phenomena. He says

“We firmly believe today that we have touched these limits in quantum mechanics. . . .

“At the same time ‘fate’ as expressed in the natural laws appears to be so weakened by our analysis that only through misunderstanding can be

it placed in opposition to free will ”

Sir James Jeans seems to favour a non-deterministic view, but he is sometimes non-committal in his opinions. He discusses the problem in different places and about nine years ago expressed his views as follows:

“Nevertheless, the most we can say is that crevices have begun to appear in what used to be considered the impregnable closed cycle

of physical science. Whether the volitions of the human mind can pass through these and affect the operations of nature must in the last resort depend on whether the two are sufficiently alike to interact—a keyhole is useless unless we have a key of the same nature as the lock. It may still be, as Descartes maintained, that mind is too dissimilar from matter ever to be able to influence it”

The idealism of Sir Arthur Eddington and also of Sir

or reject physical determinism. She accuses them of misleading theologians, preachers, and even philosophers "who should have known better." Prof Stebbing alleges that Eddington's lack of philosophical training has made it possible for him to slip into pitfalls that he might otherwise have learnt to avoid. Certain theological problems are dealt with in this interesting work, especially in Chapter 10, "Human Freedom and Responsibility." In the last chapter she criticizes

Professor Millikan's reasons for his faith in the Christian religion and for his belief that Materialism is now obsolete (the latter based upon the recent discovery that the properties of the atoms are as mysterious as any that used to masquerade under the name of "mind"), and says

“It is odd to find the view that ‘all is mysterious’ is to be regarded as a sign of hope. The rejection of the ‘billiard-ball view’ of matter does not warrant

the leap to any form of Idealism. Surely a view that finds a place for Mind in the universe only after the principle of uncertainty has been discovered or after abstruse physical speculations have made of physics a science not 'understood of the people' is not a view that should commend itself to the earnest seeker after God, especially if that seeker be a Christian. At least, I should have thought not, were it not that Christian apologists have been eager to wait

upon the pronouncements of the physicists, so thankful to be assured that *we* put into Nature the laws we profess to discover and, finally, that the chairs we sit on are not solid.”

Prof Stebbing offers some criticism on the views of Sir James Jeans, especially in his work *The Mysterious Universe*. I have always thought that critics took this work too seriously— perhaps more seriously than the author himself. Many have tried to

be facetious about his “mathematical God,” but it is unnecessary to regard this expression as anything beyond a “suggestive metaphor”. Prof. Stebbing objects, *inter alia*, to his failure to define some of his terms, such as “thought” and “thinking,” and adds

“Yet it is upon the concept of thought that the whole of his metaphysics depends. Had he been a philosopher either by training or by inclination he would surely have realized the necessity of

attempting to analyse a concept so fundamental for his argument.”

Readers will probably agree with most of the criticism of his position which has been made in the work referred to, and it may be readily conceded that he has not afforded the common reader very much clear information regarding the philosophical implications of the new physics.

The question of the objective reality of atoms and electrons must be left

to the philosophers to discuss. It would very much exceed the allotted space for this work to deal with this side of the question, and the chapter will conclude with a quotation from Einstein in a work published a few years ago:

“Science is not just a collection of laws, a catalogue of unrelated facts. It is a creation of the human mind, with its, freely invented ideas and concepts. Physical theories try to form a picture of reality and to

establish its connection with the wide world of sense impressions. Thus the only justification for our mental structures is whether and in what way our theories form such a link”

LITERATURE.

The following list contains a number of the more important work? which deal with the subject of the present chapter. Reference is made to some of these in the text

World.

11. A Einstein and Leopold Infeld, *The Evolution of Physics.*

12. H Dingle, *Science and Human Experience.*

13. *Through Science to Philosophy.*

14. E. W. Barnes, *Scientific Theory and Religion.*

15. Bertrand Russell, *Outline of Philosophy.*

16. *The Analysis of Matter.*

17. C. E. M. Joad, *Philosophical Aspects of Modern Science.*

18. *Guide to Philosophy*

19. L. Susan Stebbing, *Philosophy and the Physicists.*

20. C. D Broad,
*Determinism,
Indeterminism and
Libertarianism.*

21. M. Davidson, *Free Will
or Determinism.*

A few of these deal only with atomic physics without considering the question of free will. In 2, Eddington replies to a number of critics (including those dealing with certain philosophical difficulties), Prof W. T. Stace and Dr. C E. M. Joad, as well as Bertrand Russell, whose criticism, however, seems to be based on some

CHAPTER 13: THE POINT OF VIEW OF THE BIOLOGIST

THE title of this chapter is slightly misleading, inasmuch as there is no consensus of opinion among biologists on the question of the freedom of the will or determinism. Different schools of thought exist, and probably will exist for some time because of the conflicting nature of experimental evidence. A brief outline of the situation is all that can be attempted in one

chapter. The subject has been discussed at length in a previous work

[Free Will or Determinism (1937), especially Chapters VI, VII, VIII.]

to which readers desiring further information can refer.

As the question of the transmission of acquired traits is very important, a short survey of Lamarck's work will be undertaken at this stage. Lamarck (1744-1829) believed that spontaneous generation might result from such

to a limit which it brings about.

“(2). The production of a new organ in an animal results from the supervention of a new want continuing to make itself felt, and a new movement which this want gives birth to and encourages.

“(3). The development of organs and their force of action are constantly in ratio to the employment of these organs.

“(4). All which has been acquired, laid down, or changed in the organization of individuals in the course of their life is

generally speaking, transmitted unless they were common to both sexes. In discussing this matter he says

“Everything which Nature has caused individuals to acquire or lose by the influence of the circumstances to which their race is long exposed, and consequently by the influence of the predominant employment of such organ, or its constant disuse, she preserves by generation to the new individuals

proceeding from them, provided that the changes are common to the two sexes, or to those which have produced these new individuals.”

[In *Philosophie Zoologique*]

Lamarck, like Darwin, taught that the more complex forms of life have simpler ancestors, but he attached the chief importance in the *modus operandi* to the influence of new wants which had an indirect action in stimulating growth and use

Darwin believed that the chief factors in evolution were accidental variations which gave certain advantages to different forms of life in the struggle for existence. It is now accepted that these are insufficient to explain evolution, and other factors must be postulated. The advantage of small variations, such as Darwin thought were operative, is very problematic, and mutations or sudden jumps in the structure of organisms must now be recognized as effective in some cases. The question of

causal laws which apply to the organic world in the same way in which they apply to the inorganic, and of those who recognize the influence of Mind in everything. MacBride was convinced that evolution is the history of the acquisition of new habits, and that we reach the most fundamental explanation of adaptation which is possible by the assumption that living matter was endowed by the Creator with something that endeavours to meet adverse circumstances. Not only so, but the living matter with

such an endowment is able to control its own growth. The recognition of teleological factors in evolution appears a simple matter to some, but there are many who are unable to see anything beyond blind chance in the organic world as in the inorganic.

It is remarkable that this question regarding the transmission of acquired traits or otherwise cannot be settled definitely, and that so much doubt still remains on this subject. Weismann denied that there was such a thing as transmission of acquired

*bear.” Background to
Modern Science, Chapter
9]*

Experiments have led to very perplexing results in some cases, and in others they appear to have produced conclusive evidence—in some cases for and in others against the transmission of acquired traits. An instance can be taken from the work of Durken on the caterpillars and pupae of the common cabbage white butterfly. Generally speaking, the pupae have colours which range from practically pure

white to dirty grey, but a small percentage—about 4 per cent under natural conditions—have no pigment in the skin, and these appear to be bright green in colour because the green blood of the pupa shows through.

From the eggs of butterflies which were living under normal conditions Durken reared (*a*) caterpillars in orange light, and as a result he obtained a higher percentage of green pupae. He selected the green pupae and utilized the eggs of the butterflies which

resulted from them as follows. He reared a number of these eggs in (*b*) orange light, and these eggs produced a higher percentage of green pupae than he had previously obtained. Other eggs were reared in (*c*) bright light and others in (*d*) darkness, and in each case there resulted a much higher percentage of green pupae than would be obtained by rearing the wild and unsorted caterpillars in bright light or in darkness. The experiment seems to have established the claim of the Lamarckians that the

green colour which the pupae acquired by the presence of orange light is inherited by a large percentage of the caterpillars.

Other experiments in more recent times appear equally conclusive W. H. Thorpe describes his experiments with the larvae of *Nemeritis* and *Drosophila melanogaster* which were reared on certain media (*Proc. Roy. Soc.*, 127, 424-33; 1941). Adults of *D. melanogaster* arising from larvae reared on medium which contained essence of

choice of the adult.

It should be pointed out, however, that objections can be raised against the conclusions of experiments of this kind. Take the case of Durken's caterpillars. As the caterpillars do not all respond to the orange light, it is certain that the wild caterpillars are not all genetically homogeneous, some possessing groups of genes in the chromosomes of their germ-cells which are responsive to the orange light, while others have no such genes or, if they have, they are recessive. Obviously from

group (a) Durken segregated the more responsive caterpillars and, as might be expected, the result of this selection would show itself in group (b) as a specially responsive group. The same responsiveness would also be shown in groups (c) and (d). Similar criticism can be made of all experiments with organisms which are not shown conclusively to be *genetically homogeneous at the beginning of the experiments.* Results obtained by experiments on a mixed stock, using an

possible to obtain a giant or dwarf race. Johannsen experimented with scarlet-runner beans which reproduce by self-fertilization. The beans which come from a pure line obtained by this self-fertilization differ in size, but the difference from the mean corresponds merely to the curve of probability and lies within well-defined limits. Johannsen used the descendants of a particular bean and found that no difference in size resulted whether he sowed the large or the small beans. The distribution of size was the

same whatever selection process was employed to obtain them. Jennings did similar work with the *paramecium*, the well-known “slipper-animalcule” of our ponds. While specimens varied in length, it was impossible, *by any* process of selection, to produce a long or a short breed of this organism. Agar’s work with *simocephalus*, a water-flea which produces itself parthenogenetically, led to the same results, or perhaps proved the opposite. The eggs developed

“Selection cannot cause a group (species) to transcend the extreme variations that it naturally shows. Rigorous selection can bring a population to a point where all of the individuals are nearer to the extreme type shown by the original population, but beyond this it cannot go.”

Morgan’s own experiments on *drosophila* are worth recording, as they are an additional illustration of the danger of making false inferences. He

unrelated wild stock and the mutant type extracted from the offspring by inbreeding, flies of the eyeless type again appeared. The explanation depends on the fact that the original culture was variable in its genetic composition. In the stock-bottles there was a certain amount of competition for existence and the flies were successful in cases where their genetic qualities modified the violence of the eyeless mutation. By a process of gradual selection of these modifying factors

flies were produced in which the eyes improved, in spite of the fact that the flies still contained the mutant eyeless gene unaltered.

While Morgan's experiments appear at first to support Lamarck's Second Law, enunciated at the beginning of this chapter, it will be seen that the production of the new organ is not connected with the supervention of a new want, as Lamarck believed. Other evidence is equally unsatisfactory. Thus, while McDougall found that rats, which received an electric

traits as mutilations is extremely rare, if indeed it ever occurs. In cases where it does apparently happen it is important to inquire into the past history of the individual, the “acquired trait” may be genetic, and this is not always easy to find out. Incidentally it may be pointed out that a time will come when our male descendants will find it unnecessary to shave, if mutilations can be transmitted!

The remark made by Professor J. B. S. Haldane about ten years ago is apposite in this connection.

light is a function of the intensity of the light and of the duration of the illumination. Many other experiments with different forms of stimuli have been earned out, but these are too numerous to mention It will be sufficient to state the conclusions at which Loeb and his colleagues arrived as a result of their experiments.

A stimulus acts upon the animal's sense-organs, and through these on the organs of locomotion, in consequence of which the animal turns until its body is symmetrically stimulated

and equilibrium is established between the two sides. *These movements occur mechanically, as a result of physical and chemical changes in the various organs, with no real effort on the part of the organism.* Loeb attempted to extend his conceptions of tropic actions to comprise all animals, man included, but, as might be expected, this was impossible. [*See reference to Loeb's works at the end of the chapter*].

It is difficult to imagine a tropic creature, say an intelligent euglena,

experimenting with other euglenae to find out if they were tropic too, and it is equally difficult to imagine a human being, assuming for the moment that he is tropic, experimenting on other human beings or on himself, to discover their exact tropic reactions.

How far do other forms of life differ from the low unicellular organisms which are almost certainly tropic? Pavlov's experiments with dogs are interesting and throw some light on this question. He gave dogs some tempting food and measured the Bow

such methods are applicable to human actions is a problem which has not yet been settled. If, as seems probable from the experiments with dogs, the behaviour of these animals is not necessarily related to teleological ends, does the same thing apply to human beings? The behaviourist psychology, which has its experimental basis very largely in the work of Pavlov, does not deny the existence of mind, but denies its efficacy. Its object, as stated by a leading exponent, Dr. John B. Watson, is the

“ascertaining of such data and laws that, given the stimulus, psychology can predict what the response will be; or, on the other hand, given the response, it can specify the nature of the effective stimulus”

This short survey of the question of the reaction of organisms to tropisms, stimuli, etc., leads on to a consideration of the mechanical view of life. This will be dealt with in the remainder of this chapter.

A purely mechanical view of life is, as might be expected, associated with Materialism. Many definitions of this word have been given, but it will be sufficient to accept one of them for the present purpose, and that given by the late Prof. J S. Haldane will be used.

“Materialism may be defined as the belief that physico-chemical realism, or the assumption that the representation of our surrounding universe by the physical sciences in

their traditional form corresponds to reality, can be extended so as to cover, not only the phenomena of life, but also those of conscious behaviour”

[Materialism, in “Preface.”]

Haldane was convinced that many of the phenomena associated with life were inexplicable on mere mechanical principles. Thus, the tendency of an animal organism to maintain its internal and external

environment constant was one of those inexplicable phenomena on the materialistic hypothesis. He did not, however, accept the vitalistic hypothesis, and he simply accepted life as a fact for which an explanation was impossible.

“Life as simply life is the reality which must be assumed in biological interpretation; and the word ‘life’ is indispensable for denoting what we find.”

[Ibid, p. 50.]

opposed to the view of J. B. Haldane on the balancing of environment, it is argued that it is unnecessary to postulate an outside influence because well-known principles in physics and chemistry are able to afford at least a tentative explanation of this. Thus, Le Chatelier's principle in thermodynamics—

“when a factor determining the equilibrium of a system is altered, the system tends to change so as to oppose

and partially annul the alteration in the factor”

—may include, as a special case, the tendency of an organism to maintain a constant environment. Then the argument that we are abstracting from reality if we regard an animal as a physico-chemical system, ignoring the fact that it is a psycho-physical whole, is shown by Needham to be invalid. If such an argument were carried out consistently it would tend to encourage the method of the mystic and to deny that

there is any validity in the scientific method. Whatever may be said against the mechanistic hypotheses, at least they do provide theories which can be proved or disproved, and very little stimulus towards research is produced by some of the views which postulate an outside influence. The words of Bertrand Russell in this connection are worth pondering

“Is the human body a mere machine, governed wholly by the principles of

physics and chemistry? Wherever it is understood, it is found to be so, but there are still processes which are not completely understood; perhaps in them a vital principle will be found to be lurking? In this way, the champions of vitalism become the friends of ignorance. Let us not, they feel, know too much about the human body, lest we should discover to our dismay that we can understand it. Every fresh discovery makes this view less plausible, and restricts the

territory still open to the
obscurantist”

[Scientific Outlook]

While readers may disagree with some parts of this quotation, it must be pointed out that vitalism has retreated from one position to another, and when the operations of vitalism are limited to entelechy—that is, to some non-mechanical agent which works in psycho-physical systems—its case is weakened. The word “entelechy” is derived from

the Greek *enteles*, “attained perfection,” and *echo*, “to have,” and means the complete actualization of a thing. Leibnitz called his monads *entelechie*s (borrowing the Aristotelian term) because they have a certain perfection. Many biochemists find it difficult to entertain any intelligible conception in the word, and Needham’s description is interesting as well as amusing. He describes it as follows.

“A directive force which is neither matter nor spirit,

which can act but at the same time cannot think, and which regulates chemical processes perfectly capable of regulating themselves, seems thoroughly inconceivable to the biochemist.”

The subject of mechanism should be considered in connection with the remarkable results obtained by Loeb and others in artificial fertilization. The eggs of a certain Californian sea-urchin, which cannot be

fertilized in ordinary sea-water by the sperm of star-fish, can be fertilized if the water is a little more alkaline, or if a small amount of calcium is added to it. The larvae were not quite normal; they possessed only maternal traits, and a mere small percentage lived long enough to form skeletons. Similar results were obtained with other species, but perhaps the most remarkable experiments were those connected with artificial parthenogenesis. These were conducted with the

phenomena of life and growth can be included in the whole scheme of the universe as subject to the usual causal laws, it is difficult to see how advocates of free will can maintain their position.

The influence of Mind naturally raises the problem of teleology in the universe. Are teleological factors in evidence, or have the old views received their *coup de grace* as a result of recent developments in different branches of science? The words of Lawrence Henderson are worth quoting in this

connection, though they may come as a shock to some.

“Science has put the old teleology to death. Its disembodied spirit, freed from vitalism and all material ties, immortal, alone, lives on, and from such a ghost science has nothing to fear.”

[Fitness of the Environment]

This opinion is field by others besides men of science, the philosopher too finds it difficult to

out the contents they split up into families of young, which in turn enter the red cells and repeat the process. Inside the red corpuscles they are safe from the attacks of the white corpuscles, which are ready to pounce upon any intruders and to devour them in ordinary circumstances. The white corpuscles never attack the red cells, and so the parasite is free to continue its onslaught in the home which it quickly ruins. The parasite's preparation for sexual reproduction and the method which Nature

reason, recognition, or choice. It is possible that its whole phase is performed by some chemotatic principle, at least one hopes so, because if it acts in accordance with some Design running through the universe, many would feel disposed to say. "So much the worse for Design." Of course if we are prepared to concede that values are non-existent or that the *anopheles* or the *plasmodium* has equal value with human beings, we might admit Design, but what a Design." The following quotation from a

comparatively recent work is apposite in connection with this subject. Speaking of the competition between life and life the author says.

“An element deepening this conflict is that Nature has evolved kinds of life whose specific food consists of lives adjunct to developed mind. This obviously continues, heedless of mind, what prevails in the mindless competition between lives where one life battens on another. It suggests that Nature holds mind at a

discount; perhaps she is so fertile that she can afford to Developed mind as agent of predacity always offers the paradox that 'zest to live' develops as its corollary 'zest to kill'. It demonstrates life condemned to live by spreading pain and death around it. Whatever meaning the evolution of life and mind may have, mind, so soon as it develops, is plunged into the thick of life as conflict. Where the predatory life and its quarry both possess developed mind

the struggle leaves a trail of suffering. The predatory life which so lives is a seed of suffering on the planet's side. Nature contains much which is hateful and much of pain. Much 'that spoils the singing of the nightingale.'"

[Charles Sherrington, O.M, Man on his Nature, The Gifford Lectures, Edinburgh, 1937-8, p. 379.]

The problem which still awaits solution is the origin of life and, while recent discoveries have narrowed

problem and probably in the near future will be able to solve it completely. The virus-particle is the most minute separate life which is known, and it easily passes through the pores of a filter which is capable of stopping the smallest bacteria. A parasite on other life, it lives by turning the protein of its host into its own protein—in other words, it lives by enzymes. It has been shown quite recently that tobacco mosaic viruses have a width of about 6 ten-millionths of an inch and length seven or eight times as much and

that the particles have an internal regularity similar to that of crystals. The virus seems to be composed of piles of sub-molecules with dimensions less than cubes 5 hundred-millionths of an inch in the length of each side. Their internal regularity, their lack of water, and also their chemical simplicity separate these viruses most sharply from the simplest recognized organisms.

[See J. Gen Physiol, 25,111-65 (1941). Three papers by Prof. J.D. Bernal and Dr. I. Fankuchen.]

The virus seems to be on

probability that the exact conditions for the development of life by certain chemical processes existed for many millions of years. Someday these conditions may be reproduced in the laboratory and the mystery that has baffled the human mind will be a mystery no longer. To quote again from Sherrington:

“Chemistry and physics account for so much that the cell does, and for so much to which years ago physical science could at

that time offer no clue, that it is justifiable to suppose that the still unexplained residue of the cell's behaviour will prove resolvable by chemistry and physics."

[Ibid., p. 135]

LITERATURE.

The literature on the subject of this chapter covers such a wide scope that reference can be made only to the more outstanding works. In the list below readers will find different points of view,

and attention is specially drawn to the research of Driesch and others on the cleavage cells of the sea-urchin. Driesch postulated an “entelechy” to explain certain peculiarities. See the present author’s comments on these results in *Free Will or Determinism*, Chapter VII.

A. Weismann, *The Germ Plasm Theory* E. W. MacBride, in *Zoology*, p 261

Evolution in the Light of Modern Knowledge.

Also in *The Great Design*,

Order and Progress in Nature (edited by Francis Mason), “Study of Heredity.”

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Brit. Journ, Psych., April 1927, January 1930, October 1933, October 1935. A Dendy, *Outlines of Evolutionary Biology*, *Journ. Exp Zool*, 46, 301.

Marcus S Pembrey, *Evolution in the Light of Modern Knowledge*, especially the Chapter “Physiology.”

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J. C. Willis, *Age and Area*.

H. G. Wells, Julian Huxley,
G P. Wells, *The Science of
Life*.

J. A. Thomson and Patrick
Geddes, *Outlines of
General Biology*.

J. Graham Kerr, *Evolution*.

J. S. Haldane, *Materialism
The Sciences and
Philosophy*.

J. Arthur Thomson,
Concerning Evolution.

C. E. M. Joad, *Mind and
Matter*, especially Chapter
IV.

C Lloyd Morgan, *Emergent
Evolution*.

Life Mind, and Spirit.

Henri Bergson, *Creative*

Evolution.

J. C. Smuts, *Holism and Evolution* F.

Younghusband, *The Living Universe.*

W. McDougall, *Religion and the Sciences of Life.*

Modern Materialism and Emergent Evolution

Body and Mind An Outline of Psychology

A. N Alexander, *Space, Time, and Deity.*

L. J. Henderson, *Fitness of the Environment.*

J. Needham, *Man a Machine.* See also his summary in *Science, Religion, and Reality.*

Peter Chalmers Mitchell,

Materialism and Vitalism in Biology.

Among the works which deal with experiments on animals the following will be useful.—

H. "Dresch, *The Science and Philosophy of the Organism*. Also his paper in *Arch.f. Entwclcklingsmeck*, 1902, XIV, 500.

Jacques Loeb, *The Organism as a Whole Artificial Parthenogenesis and Fertilization.*

—*Dynamics of Living Matter*

Theodore H Savory,

CHAPTER 14: CONCLUSION

IN the preceding chapters I have attempted to present an outline of the controversy between those who have advocated a deterministic system in the Universe, this system including in many cases the actions of human beings, and those who have maintained that the Universe is not a closed system. The arguments have been briefly summarized and readers have been left to judge for themselves,

though it is fairly certain that many will find it extremely difficult to decide who are the victors in the contest. There is no necessity to feel disappointed if the evidence seems to lead to results which are inconclusive. The subject is bristling with difficulties and there are decided limitations to the capacity of the human mind. Even if no decision has been reached it is hoped that this fact will not detract from the interest in the subject. Readers may feel disposed to reiterate the words of the

“The riddle of matter is still unsolved, but it is reduced to the problem of the ultimate particles. The solution of this problem is the task of the physics of the future.”

*[The Restless Universe,
p. 277]*

Even then, assuming that more light is thrown on the “ultimate particles,” the particular problem which has been considered in this book may still remain unsolved. Those who have read the preceding chapters carefully will agree that it is

a very simple matter to obtain a one-sided view of a subject, and to think that all its difficulties will disappear if only a few fundamental assumptions are accepted. It has been pointed out that the physicist who lacks the philosophical outlook and training may prove to be an unsafe guide. It has been shown from a number of instances that the biologist is capable of deducing utterly erroneous conclusions from his experimental data. A great many of the philosophical speculations on the

particular problem which has been considered in the present work are unconvincing. When the theologian enters the arena his armour proves very ineffective against modern methods of attack; and it is now impossible to hope that Revelation—a favourite armour of the past—will afford any protection in the future. As the Dean of St. Paul's reminds us.

“An impassable gulf separates the modern theologian from the whole

past of his science. He cannot argue as his most revered predecessors argued, their presuppositions are not his”

[God in Christian Thought and Experience, p 114]

It is certain that theology will have very little influence in any future discussions of the subject.

Many are perplexed regarding the important question of moral responsibility, which seems to depend to some extent

on the problem of free will or determinism. Perhaps the following quotations from a very important philosophical work will be of assistance to them in their dilemma, they are taken from a recent book by Professor John Laird, and probably reflect the views of many at the present time.

“On the whole the plain statement that human beings are capable of insight into rightness, and of action in accordance with such insight, is one of

the best ways of indicating the primary difference between human beings and all other natural beings that we know of. Human beings are not, of course, infallible. There is much bad reasoning, much hollow and merely ostentatious moralizing among men. That, however, is not an objection. The insight is often quite genuine, and so is its influence. When mistakes are made, they really are *mistakes* and they would be wholly impossible in a being that

neither saw nor erred. Personally I would go further and hold that there is no intelligible sense of moral freedom except the sense that is seldom disputed, the truism, namely, that in a certain limited class of actions we are able to decide in accordance with what we believe (and sometimes *see*) to be right, and to act accordingly. *Such*

freedom does not imply that our minds are exempt from temporal causes at any time. On the contrary we usually believe that

there is no such exemption. A man, we say, is not responsible, that is, cannot decide and act in the relevant moral way, if he is drugged or starved or in a fever. His lack of freedom in that case has temporal causes. Is it reasonable to account for his *lack* of freedom in this way, but to denounce that type of explanation altogether when the drug wears off, or when the man is fed or bled?

This last, however, is an interpolation of my own. Let it be forgotten if it

proves to be too perplexing”

[Theism and Cosmology, and Mind and Matter. The Gifford Lectures in the University of Glasgow in 1939-40 The quotation is taken from the second series, pp. 248-50]

This question of moral responsibility is beset with many difficulties, and even the philosopher-theologian is not always, convincing when he attacks the problem In concluding this

through seven impressions, completing 20,000 copies. The general line of thought is similar to that which was worked out in *Christus Veritas*, published in 1924, and there was ample time for readers to point out certain apparent contradictions in some of the arguments. These seem to have been repeated, however, in *Christian Faith and Life*, and a few of them will now be examined.

On p. 16 we are told that in the choice between the ends of life we discover a sense of obligation which is absolute “a sense of

and we must criticize them and find how far we are justified in accepting them. On p. 65 we are informed that the greatest abominations in the world have come from conscience itself, such as the Inquisition, “which was at least instituted on the most profoundly conscientious grounds.”

The chief comment which need be passed on all this—which, it may be added, is utterly confusing to ordinary minds—is that one must express extreme regret at the contradictions in the development of these

views. There is the sense of obligation which is absolute, but it appears that it is not absolute because it is largely determined by our nationality and social status. This conscience which, in a certain sense is “the voice of the Holy Spirit within us,” has been responsible for “the greatest actual abominations” Throughout the argument there is no clear line of demarcation between the functions of conscience and of the Holy Spirit, and readers are liable to gain the

impression that the Holy Spirit in some way had a share in the abominations. The whole of this argument requires a considerable amount of clarifying

Let us now turn to a more exacting work by Dr Temple In 1934 *Nature, Man, and God* was published. This consisted of the Gifford Lectures delivered in the University of Glasgow from 1932-4, and the problem of free will is discussed in various parts of the work We agree with Dr. Temple in his condemnation of theologians and Christian

apologists who rejoice at the discovery of supposed indeterminacy at the basis of the physical world. It is to be hoped that some of these will take very seriously his words in this connection: "That anyone should be turned from Atheism to Theism by a belief that electrons act unaccountably seems inconceivable." Although it is possible to take one's stand with the Archbishop on this point there are many other positions adopted by him which it is difficult to accept.

In Lecture XIV, "Finitude

human mind to seek some explanation of the world in terms other than those of purely efficient causation. This last admission detracts very much from the value of the view that the problem of evil only exists for those who believe that the world is created and governed by God, which was affirmed in the previous statement, but we shall not enlarge on this flagrant contradiction. It will be sufficient to consider whether there is any real connection between theistic schemes and the problem of evil.

even connected with sects and professions. It is beside the point to argue that the Hindus' sense of sin differs from ours and that many of the things which they consider virtuous are revolting to our consciences. Dr. Temple has admitted that conscience is largely a function of nationality and social standing. In these circumstances we must not be hasty in our judgment of people who adore the Brahmanic gods, venerate the cow, observe rules of caste in marriage and in eating food, and go to the

priesthood for various forms and ceremonies connected with birth, matrimony, and death, and who also adopt numerous cruel and immoral practices in their religion. Where is the theistic scheme in the Hindu Pantheon? The same question might be asked with regard to many other ancient religious systems which had little in common with theistic schemes and which, nevertheless, inculcated the sense of sin and evil in their adherents; but this is unnecessary, and we shall now look at some

of Dr. Temple's pronouncements in other parts of the work under consideration.

The question of responsibility for man's condition has been considered in different portions of the present work, and especially in Chapter IV, where we saw that Luther shrank from the view that God had predestined the reprobate to eternal loss, though Calvin adhered to this doctrine. Dr. Temple's method of dealing with the problem leaves the reader in some doubt regarding

the responsible agent, and he adopts a principle of probabilities in supporting his view, as the following quotation will show —

“Because it was not necessary that we should err, we cannot say that our sin is itself God’s act; it is our fault, not His, in the first instance. But that we are finite selves is directly due to God’s act, and we cannot doubt that God foresaw the issues of conferring selfhood upon finite beings, so that sin falls within His purpose,

and is even part of it, though it cannot be said that He directly willed or wills it. What He faced was a probability so great as to be distinguished only in thought from certainty. I speak after the manner of men'. Of course there is, for God's *eternal* knowledge, no such thing as 'probability' but apprehension of all reality in its ordered completeness. Yet that distinction in thought is important. For it means that God did not directly cause any man to sin."

and knowledge to Him. The two forms of knowledge have at least this advantage—they exonerate the Creator from the responsibility for man's fallen condition. In a subsequent Lecture, XVII, "The Meaning of History," it is explained that God does not know *beforehand* exactly how human beings will respond to the various modes of His manifestation of Himself to them : "So far as He is Himself at work within the process of Time, the precise mode of the future is unknown to Him, though its general issue in

the fulfillment of His purpose is secure. Yet, all the same, because He is not in His own nature within the Time-process any more than the dramatist is personally within the play, and all that happens utterly depends on Him, He knows it all with utter certainty.”

The description of metaphysics seems very appropriate at this stage “When the audience does not know what the lecturer is talking about, and the lecturer himself does not know, that is metaphysics.” Are we seriously to accept the view that the Creator

faced certain probabilities, though for His eternal knowledge there is no such thing as probability? Can we believe that we are finite through His act, that He foresaw what the consequences of selfhood conferred upon finite beings would be, that sin falls within His purpose, and yet by an assumption on probability He is completely exonerated? Moreover, this probability was so great as to be distinguished only in thought from certainty It may not be presumptuous to suggest that Dr. Temple

might study some modern works on the theory of probabilities,

[Two of the most modern works are Theory of Probability, 1939, by Dr. Harold Jeffreys, and Probability and Frequency, by Prof H C Plummer]

and then, perhaps, he will “speak after the manner of men” and express himself in language which even the mathematician can understand.

Thus the philosopher-theologian,

but the problem still remains unsolved, and one great obstacle to its solution must be sought in the limitations of the human mind. The words of the physicist are a very appropriate conclusion to the matter —

“Through the victories of science, through the great theories in which we apprehend the harmony of the universe, through the development and progress of modern science, we become ever more profoundly sensible

of the disparity between the wealth and abundance of reality around us and the limitation and poverty of our comprehension.”

[Leopold Infeld, The World in Modern Science, p. 274.]

REFERENCES

Below are some of the names of those who have associated themselves with the problem. In a few cases their writings have only a very indirect connection with the subject.

Democritus; date of birth given at dates between 490 and 460 B.C.

All are agreed that he lived to a great age.

Plato; 427-347 B c

Aristotle; 384-321 c BC.

Epicurus; 342-270 BC.

Zeno, founded his school

about the end of the fourth century B.C.

Dates of birth and death uncertain

Lucretius; 96-55 B.C.

Seneca; AD 3-65

Paul; AD 64c.

Marcus Aurelius Antoninus, 121-80

Augustine, Bishop of Hippo; 354-430

Pelagius, dates of birth and death uncertain. His doctrine was heard of first early in the fifth century.

Thomas Aquinas; 1225 c -1274

Luther; 1483-1546

Calvin; 1509-64

Descartes; 1596-1650

Spinoza; 1632-77
Leibnitz; 1646-1716
Anthony Collins, 1676-1729
Bishop Butler, 1692-1752
Jonathan Edwards;
1703-58
Thomas Reid, 1710-96
Hume, 1711-76
Kant; 1724-1804
Robert Owen; 1771-1858
John Stuart Mill; 1806—73
Haeckel; 1834-1919

The names of some of those who have taken part in the controversy in recent times are given below. In addition to these, the works of many of those which are given at the end of Chapter

XIII have an indirect bearing on the subject.

Sir Arthur Eddington
Sir James Jeans
Bertrand Russell
Dr. C. E. In Joad
Prof. H. Dingle
Prof. L. Susan Stebbing

GLOSSARY

Empiricism, dependence for our knowledge on mere observation and experience.

Entelechy a hypothetical principle endowed with purpose, which has been

unalterable laws, and that these phenomena are due to mechanical causes, not to final causes.

Ontological argument the argument used by Anselm, Archbishop of Canterbury in the eleventh century, to prove the existence of God. This argument was supposed to prove that the being than whom nothing greater could be conceived—*i.e.*, God—must necessarily have real existence. This argument is not accepted by theologians to-day.

Parthenogenesis

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